GeoVision inc
The Vision of Security

GV-IPCam H.264 1.3M/VGA

User's Manual

Before attempting to connect or operate this product,
please read these instructions carefully and save this manual for future use.

Every effort has been made to ensure that the information in this manual is accurate. GeoVision is not responsible for printing or clerical errors.

GeoVision, Inc.
9F, No. 246, Sec. 1, Neihu Rd.,
Neihu District, Taipei, Taiwan
Tel: +886-2-8797-8377
Fax: +886-2-8797-8335
http://www.geovision.com.tw

April 2010

Preface

Welcome to the *GV-IPCAM H.264 User's Manual*.

The GV-IPCAM H.264 has a series of models designed to meet different needs. This Manual is designed for the following models and firmware version:

Model	Model Number	Firmware Version
Box Camera	GV-BX110D	V1.01
	GV-BX110DW	V1.01
	GV-BX010D	V1.01
Mini Fixed Dome	GV-MFD110	V1.01

This Manual provides an overview of the GV-IPCAM H.264 and its accessories. The introduction will present you the features and the usage of the GV-IPCAM H.264.

Contents

Note for Recording

The GV-IPCAM H.264 is designed to work with GV-System/GV-NVR, a hybrid or digital video management system. Normally, the images are recorded to the memory card inserted in the Box Camera. Once the camera is connected to GV-System/GV-NVR for video management or its Live View (Figure 3-3) is accessed through the browser, the recording to the memory card will be stopped and the recording will be taken control by GV-System/GV-NVR. When the connection between the camera and GV-System/GV-NVR is interrupted, the recording to the memory card will be resumed to back up the images on the camera.

Note for Firmware Upgrade

Before you upgrade the firmware, please follow these instructions:

1. The firmware upgrade must be performed on the LAN.
2. Stop monitoring of GV-IPCAM H.264.
3. Stop all the remote connections including Center V2, VSM, ViewLog Server and 3GPP.
4. Stop the connection to GV-System/GV-NVR.

The failure to follow the above instructions may cause damages to the GV-IPCAM H.264. For details on firmware upgrade, see *6.1 Upgrading System Firmware* in the User's Manual.

If firmware upgrade fails, you will need to restore the camera to the default settings. For this see *6.3 Restoring to Factory Default Settings* in the User's Manual.

Chapter 1 Introduction

1.1 Key Features

- Progressive Scan CMOS
- Built-in Web server for monitoring through IE browser
- Dual video streams from two of H.264, MJPEG and MPEG4
- Up to 15 frames per second in megapixel resolution (1280 x 1024)
- Built-in microphone
- 2-way audio communication ∗
- One sensor input and one alarm output
- TV-out support
- Motion detection triggering actions like image upload and output trigger
- Privacy mask allowing the concealment of parts of the image that should not be viewable
- IP address filtering
- 3GPP/ISMA
- PoE (Power over Ethernet)
- Day/Night function
- Megapixel and IR lens included

∗ Mini Fixed Dome only supports one-way audio

1.2 Models

The GV-IPCAM H.264 series is available in two models: **Box Camera** and **Mini Fixed Dome**. **Box Camera** can be divided into two categories: **Wired** models (GV-BX110D / GV-BX010D) and **Wireless** models (GV-BX110DW).

Model	Model No.	Description
Box Camera	GV-BX110D	GV-IPCAM, 1.3 M, H.264, D/N
	GV-BX110DW	GV-IPCAM, 1.3 M, H.264, D/N, Wireless
	GV-BX010D	GV-IPCAM, VGA, H.264, D/N
Mini Fixed Dome	GV-MFD110	GV-IPCAM, 1.3 M, H.264 (Indoor Use Only)

Box Camera

SD Card Slot	Each model also comes with the option of a mini or micro SD card slot. The SD card slot only supports the mini or micro SD/SDHC card of Class 6 or above which transfers data at 6 MB or above per second.
Lenses	Fixed Focal: Megapixel and IR lens are included. Varifocal: Megapixel and Auto Iris IR lens are optional.

For **Supported Lenses**, see *Appendix*.

1.3 Packing List

The GV-IPCAM H.264 package includes the following items:

1.3.1 Box Camera

- GV-IPCAM H.264
- 5-Pin Terminal Block
- Fixed Focal Lens (Megapixel, IR, CS Lens)
- C Mount Lens Adaptor
- Security Torx
- Power Adaptor
- Antenna (Only for Wireless models)
- GV-IPCAM H.264 User's Manual
- GV-IPCAM H.264 Software CD

1.3.2 Mini Fixed Dome

- Mini Fixed Dome
- Security Torx
- Self Tapping Screws
- Plastic Screw Anchors
- GV-IPCAM H.264 User's Manual
- GV-IPCAM H.264 Software CD

1.4 System Requirement

To perform the GV-IPCAM H.264 operations through web browser, ensure your PC is in good network connection, and meet this system requirement:

- Microsoft Internet Explorer 6.x or later

1.5 Options

Optional devices can expand your GV-IPCAM H.264's capabilities and versatility. Contact your dealer for more information.

DC Iris Lens	See *DC Iris Lens Specifications* later in this manual.
GV-IR Lamp	An infrared illuminator.

1.6 Overview

1.6.1 Box Camera

1.6.1.1 Wired Model

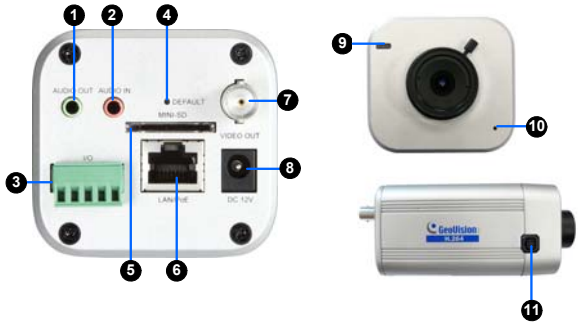


Figure 1-1

No.	Name	Description
1	Audio Out	Connects a speaker for audio output.
2	Audio In	Connects a microphone for audio input.
3	I/O Terminal Block	For details, see *Chapter 9 The I/O Terminal Block*.
4	Default	Resets all configurations of the GV-IPCAM H.264 to the default factory settings. See *6.3 Restoring to Factory Default Settings*.
5	SD Card Slot	Inserts a mini or micro SD/SDHC memory card to store recording data. The figure shown here is an example of a miniSD Card slot.
6	LAN / PoE	Connects to a 10/100 Ethernet or PoE.
7	Video Out	Connects to a portable monitor for setting the focus and angle of GV-IPCAM H.264 during initial installation.

8	DC 12V Connector	Connects to power.
9	Status LED	See *1.6.3 Status LED.*
10	Microphone	Records the sounds.
11	Auto Iris Connector	If the auto iris lens is in use, plug the iris control cable to the connector.

1.6.1.2 Wireless Model

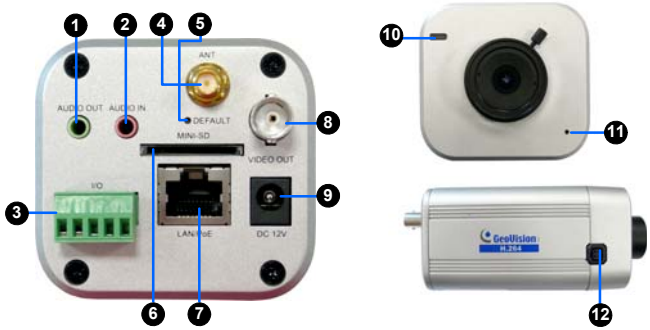


Figure 1-2

No.	Name	Description
1	Audio Out	Connects a speaker for audio output.
2	Audio In	Connects a microphone for audio input.
3	I/O Terminal Block	For details, see *Chapter 9 The I/O Terminal Block.*
4	Antenna	Plugs the antenna for the Wireless WLAN function
5	Default	Resets all configurations of the GV-IPCAM H.264 to the default factory settings. See *6.3 Restoring to Factory Default Settings*.

6	SD Card Slot	Inserts a mini or micro SD/SDHC memory card to store recording data. The figure shown here is an example of a miniSD Card slot.
7	LAN / PoE	Connects to a 10/100 Ethernet or PoE.
8	Video Out	Connects to a portable monitor for setting the focus and angle of GV-IPCAM H.264 during initial installation.
9	DC 12V Connector	Connects to power.
10	Status LED	See *1.6.1.3 Status LED.*
11	Microphone	Records the sounds.
12	Auto Iris Connector	If the auto iris lens is in use, plug the iris control cable to the connector.

1.6.1.3 Status LED

The status LED is used to reflect the system status of the camera.

Status LED	Description
Red Light ON	The system powers on and succeeds to boot up.
Flashing Red and Orange Lights	The camera is ready for use with network connectivity.
Green Light ON	Error occurs on the system.

1.6.2 Mini Fixed Dome

Figure 1-3

No.	Name	Description
1	Default Button	Resets the camera to factory default. See *6.3 Restoring to Factory Default Settings*.
2	Lens	Rotates the les right/left to adjust focus.
3	Focus Fixed Screw	Loosens the screw to adjust the lens.
4	Tilt Fixed Screw	Loosens the screw to adjust tile angle.
5	Built-In Microphone	Provides one-way audio.

Figure 1-4

6	Network/PoE Connection	Connects the Network cable for power and Ethernet connection.

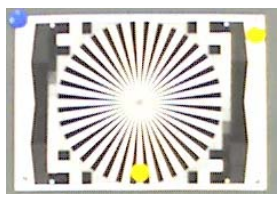
1.7 Adjustment

1.7.1 Focus Adjustment of Box Camera

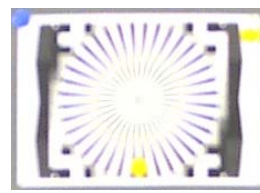
To adjust the focus or image clarity during the initial installation of the GV-IPCAM H.264, it is suggested to print out the diagram of radiating lines included on Software CD and hang up the diagram at the surveillance area for focus adjustment.

In the following examples, the left diagram has a good focus with clear radiating lines; the right diagram has a poor focus with blurred lines.

Good focus



Poor focus



1.7.2 Lens Adjustment of Mini Fixed Dome

To produce a clear image, follow the steps below to adjust the camera's focus.

1. Unscrew the camera's cover.

Figure 1-5

2. Loosen the focus fixed screw, and rotate the lens clockwise or counterclockwise to adjust focus. Loosen the tilt fixed screw, and adjust the camera's tilt angle.

Figure 1-6

1.8 Optional Installation

1.8.1 C-Mount Lenses

If you use the C-mount lens, it requires a certain distance from the camera's imaging chip; otherwise it will not be possible to focus the lens. Mount the supplied C mount adaptor to the camera, and then attach the lens onto the C mount adaptor.

C Mount Adapter

Completion

1.8.2 Auto Iris Lenses

If you use the auto iris lens, follow the steps below to install and adjust the lens.

1. Plug the iris control cable to the Auto Iris Connector on the camera (No. 11, Figure 1-1 or No. 12, Figure 1-2).
2. Access the Web interface of the camera to see the live view. See *3.1 Accessing Your Surveillance Images*.
3. Adjust the camera view based on the following notes:
   - Point the camera to a bright area of the surveillance scene.
   - Avoid objects moving in the camera view during the adjustment.
   - Mount the camera on a stable location.
   - Adjust the focus until the camera view is as clear as possible.

4. Select **Video and Motion** from the Web interface, select **Video Settings**, select **Streaming 1**, set the **D/N** option to be **Color**, and set the **Auto Iris** option to be **Disable**.
5. Click **Apply**.
6. On the same Video Settings page, click **Start** for Auto Adjustment.
7. After adjustment is complete, set the **D/N** option to be **Auto** and set the **Auto Iris** option be **Enable**.
8. Click **Apply**.
9. Re-log on to the camera.

1.8.3 Infrared Illuminators

If you use the infrared (IR) illuminator with I/O function, follow the steps below to install it.

1. Connect the infrared illuminator to the terminal block on the camera. See *Chapter 9 The I/O Terminal Block*.
2. Access the Web interface of the camera.
3. Select **Video and Motion**, select **Video Settings**, select **Streaming 1** and set the **IR Check Function** option to be **Trigger by Input**.
4. Click **Apply**.

For the **Trigger by Input** function, see *4.1.1 Video Settings*.

Chapter 2 Getting Started

This section provides basic information to get the GV-IPCAM H.264 working on the network.

2.1 Installing on a Network

These instructions describe the basic connections to install the GV-IPCAM H.264 on the network.

1. Using a standard network cable, connect the camera to your network.
2. Optionally connect a speaker and a microphone for two-way audio communication.
3. Connect power using one of the methods:
   - Using the supplied power adaptor, connect to power.
   - Use the Power over Ethernet (PoE) function. The power will be provided over the network cable.
4. Check if the status LED on the front of the Box Camera or the network status LED of the Mini Fixed Dome turns on. Then you can set the IP address for the unit.

Note: See “Power over Ethernet” in Specifications later in this manual before purchasing a PoE adaptor.

2.2 Assigning an IP Address

Designed for use on the network, the GV-IPCAM H.264 must be assigned an IP address to make it accessible.

Note: The camera has a default IP address of 1**92.168.0.10**. The computer used to set the IP address must be under the same network assigned to the unit.

---

1. Open your web browser, and type the default IP address http://192.168.0.10.
2. In both Login and Password fields, type the default value **admin**. Click **Apply**.
3. In the left menu, select **Network** and then **LAN** to begin the network settings.

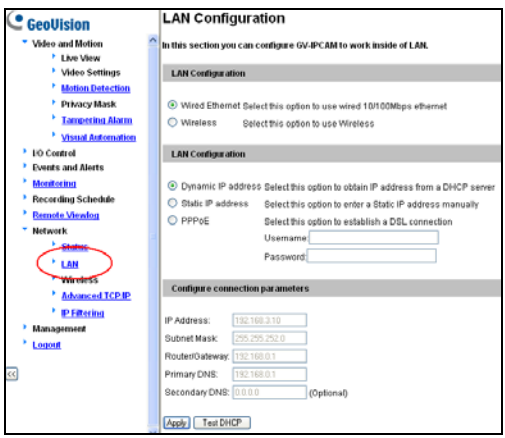


Figure 2-1

4. Select **Static IP address**. Type IP Address, Subnet Mask, Router/Gateway, Primary DNS and Secondary DNS in the **Configure connection parameters** section.
5. Click **Apply**. The camera is now accessible by entering the assigned IP address on the web browser.

Important:

- **Dynamic IP Address** and **PPPoE** should only be enabled if you know which IP address the camera will get from the DHCP server or ISP. Otherwise you must use the Dynamic DNS service to obtain a domain name linked to the camera's changing IP address first.
  For details on Dynamic IP Address and PPPoE, see *4.7.3 Advanced TCP/IP.*
- **If Dynamic IP Address** and **PPPoE** is enabled and you cannot access the camera, you may have to reset it to the factory default and then perform the network settings again.
  To restore the factory settings, see the **Default** button in *1.6 Overview*.

2.3 Configuration Basics

Once the camera is properly installed, the following important features can be configured using the browser-based configuration page and are discussed in the following sections in this manual:

- **Date and time adjustment:** see *4.8.1 Date & Time Setting*.
- **Login and privileged passwords:** see *4.8.4 User Account*.
- **Network gateway:** see *4.7 Network*.
- **Camera image adjustment:** see *3.2.2 The Control Panel of the Live View Window*.
- **Video format, resolution and frame rate:** see *4.1.1 Video Settings*.

Chapter 3 Accessing the Camera

Two types of users are allowed to log on to the GV-IPCAM H.264: **Administrator** and **Guest**. The Administrator has unrestricted access to all system configurations, while the Guest has the access to live view and network status only.

3.1 Accessing Your Surveillance Images

Once installed, your GV-IPCAM H.264 is accessible on a network. Follow these steps to access your surveillance images:

1. Start the Internet Explorer browser.
2. Enter the IP address or the domain name of the camera in the **Location/Address** field of your browser.

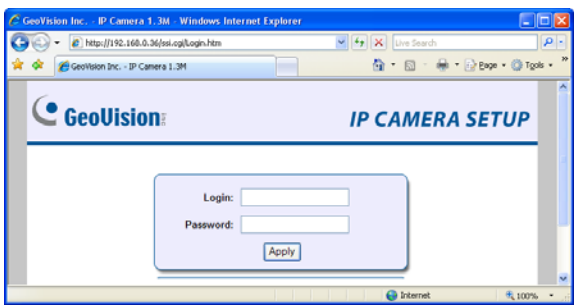


Figure 3-1

3. Enter the login name and password.
   - The default login name and password for Administrator are **admin**.
   - The default login name and password for Guest are **guest**.

4. Click **Apply**. A video image, similar to the example on Figure 3-2, is now displayed in your browser.

Note: To enable the updating of images in Internet Explorer, you must set your browser to allow ActiveX Controls and perform a once-only installation of GeoVision's ActiveX component onto your computer.

3.2 Functions Featured on the Main Page

This section introduces the features of the **Live View** window and **Network Status** on the main page. The two features are accessible by both Administrator and Guest.

Main Page of Guest Mode

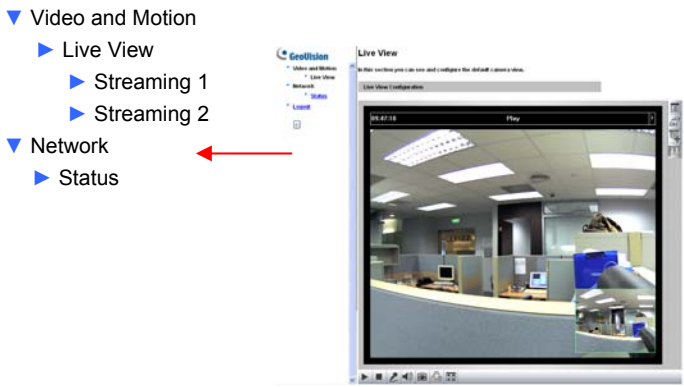


Figure 3-2

The GV-IPCAM H.264 can process one video stream in two different codec and image settings. When you access the live view, click **Streaming 1** or **Streaming 2** in the left menu.

3.2.1 The Live View Window

Figure 3-3

No.	Name	Function
1	Play	Plays live video.
2	Stop	Stops playing video.
3	Microphone	Talks to the surveillance area from the local computer.
4	Speaker	Listens to the audio around the camera.
5	Snapshot	Takes a snapshot of live video. --- See *3.2.3 Snapshot of Live Video*.
6	File Save	Records live video to the local computer. --- See *3.2.4 Video Recording*.

7	Full Screen	Switches to full screen view. Right-click the image to have these options: **Snapshot**, **PIP**, **PAP**, **Resolution** and **Google Maps**. --- See *3.2.5 Picture-in-Picture and Picture-and-Picture View* for PIP and PAP views, *4.8.2 GPS Maps Settings*.
8	I/O Control	Starts the I/O Control Panel or the Visual Automation. --- See *3.2.11 I/O Control*.
9	Show System Menu	Brings up these functions: **Alarm Notify**, **Video and Audio Configuration, Remote Config**, **Show Camera Name** and **Image Enhance**. --- See *3.2.6 Alarm Notification*, *3.2.7 Video and Audio Configuration, 3.2.8 Remote Configuration, 3.2.9 Camera Name Display*, and *3.2.10. Image Enhancement.*

3.2.2 The Control Panel of the Live View Window

To open the control panel of the Live View window, click the arrow button on top of the window. You can access the following functions by using the right and left arrow buttons on the control panel.

Figure 3-4

[Information] Displays the version of the camera, local time of the local computer, host time of the camera and the number of users logging in the camera.

[Video] Displays the current video codec, resolution and data rate.

[Audio] Displays the audio data rates when the microphone and speaker devices are enabled.

[I/O Control] Provides a real-time graphic display of the input and output status. You can force the output to be triggered by double-clicking its icon.

[Alarm Notify] Displays the captured images by sensor triggers and motion detection. For this function to work, you have to configure the Alarm Notify settings first. See *3.2.6 Alarm Notification*.

[GPS] For details 4.*8.2 GPS Map Settings*.

[Download] Allows you to install the programs from the hard drive.

[Camera Adjustment] Allows you to adjust the image quality settings.

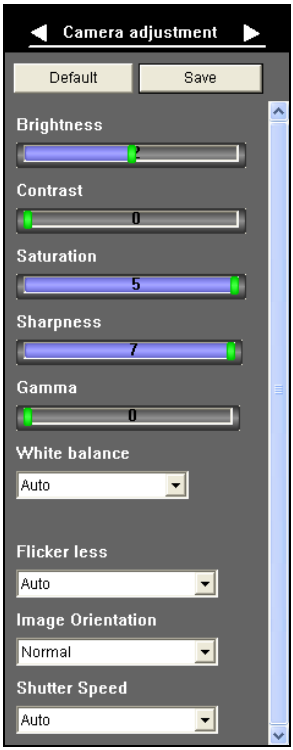


Figure 3-5

- **Brightness:** Adjusts the brightness of the image.
- **Contrast:** Adjusts the relative differences between one pixel and the next.
- **Saturation:** Adjusts the saturation of the image.
- **Sharpness:** Adjusts the sharpness of the image
- **Gamma:** Adjusts the relative proportions of bright and dark areas
- **White balance:** The camera automatically adjusts the color to be closest to the image you are viewing. You can choose one of the three presets: **Indoor**, **Tungsten Lamp** and **Outdoor**. You can also choose **Manual** to adjust the white balance manually.
- **Flicker less:** The camera automatically matches the frequency of your camera's imager to the frequency of indoor light sources, e.g. fluorescent lighting. You can also select 50 Hz or 60 Hz manually. If these don't match, faint light and dark bars may appear in your images. Check the power utility to determine which frequency is used.
- **Image Orientation:** Changes the image orientation on the Live View window.
- **Shutter Speed:** Determines how long the image sensor is exposed to light. The range of shutter speed is from 1/5 to 1/4000 sec. In low light conditions, fast shutter speed will lower color quality and image clarity. In such conditions, you can choose one of these presets: **Auto (Low Light, Balanced)** to find a balance between shutter speed and image quality, **Auto (Low Light, Speed)** to have smooth images at the cost of image quality, or **Auto (Low Light, Quality)** to get the image in best quality possible but no smoothness .

Shutter	Speed	Balanced	Quality
Image Brightness	Poor	Good	Excellent
Image Clarity	Poor	Good	Excellent
Image Smoothness	Excellent	Good	Poor

3.2.3 Snapshot of Live Video

To take a snapshot of live video, follow these steps:

1. Click the **Snapshot** button (No. 5, Figure 3-3). The Save As dialog box appears.
2. Specify **Save in**, type the **File name**, and select **JPEG** or **BMP** as **Save as Type**. You may also choose whether to display the name and date stamps on the image.
3. Click the **Save** button to save the image in the local computer.

3.2.4 Video Recording

You can record live video for a certain period of time to your local computer.

1. Click the **File Save** button (No. 6, Figure 3-3). The Save As dialog box appears.
2. Specify **Save in**, type the **File name**, and move the **Time Period** slider to specify the time length of the video clip from 1 to 5 minutes.
3. Click the **Save** button to start recording.
4. To stop recording, click the **Stop** button (No. 2, Figure 3-3).

3.2.5 Picture-in-Picture and Picture-and-Picture View

The full screen mode provides two types of close-up views: **Picture-in-Picture (PIP)** and **Picture-and Picture (PAP)**. The two views are useful to provide clear and detailed images of the surveillance area.

To access this feature:

- Click the **Full Screen** button (No. 7, Figure 3-3). Right-click the full screen to have the options of **PIP** and **PAP**.
- Right-click the live view to have the options of **PIP** and **PAP**.

Picture-in-Picture View

With the Picture in Picture (PIP) view, you can crop the video to get a close-up view or zoom in on the video.

Figure 3-6

1. Select **PIP**. An inset window appears.
2. Click the insert window. A navigation box appears.
3. Move the navigation box around in the inset window to have a close-up view of the selected area.
4. To adjust the navigation box size, move the cursor to any of the box corners, and enlarge or diminish the box.
5. To exit the PIP view, right-click the image and click **PIP** again.

Picture-and-Picture View

With the Picture and Picture (PAP) view, you can create a split video effect with multiple close-up views on the image. A total of 7 close-up views can be defined.

Figure 3-7

1. Select **PAP**. A row of three inset windows appears at the bottom.
2. Draw a navigation box on the image, and this selected area is immediately reflected in one inset window. Up to seven navigation boxes can be drawn on the image.
3. To adjust a navigation box size, move the cursor to any of the box corners, and enlarge or diminish the box.
4. To move a navigation box to another area on the image, drag it to that area.
5. To change the frame color of the navigation box or hide the box, right-click the image, select **Mega Pixel Setting** and click one of these options:
   - **Display Focus Area of PAP Mode:** Displays or hides the navigation boxes on the image
   - **Set Color of Focus Area:** Changes the color of the box frames.
6. To delete a navigation box, right-click the desired box, select **Focus Area of PAP Mode** and click **Delete**.
7. To exit the PAP view, right-click the image and click **PAP** again.

3.2.6 Alarm Notification

After input triggers and motion detection, you can be alerted by a pop-up live video and view up to four captured images.

Figure 3-8

To configure this function, click the **Show System Menu** button (No. 9, Figure 3-3), and select **Alarm Notify**. This dialog box appears.

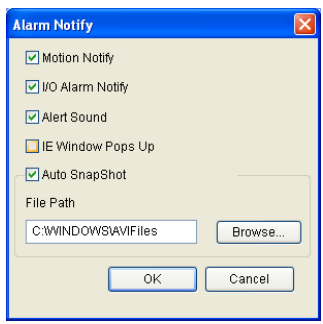


Figure 3-9

- **Motion Notify:** Once motion is detected, the captured images are displayed on the control panel of the Live View window.
- **I/O Alarm Notify:** Once the input device is triggered, the captured images are displayed on the control panel of the Live View window.

For this function to work, the Administrator needs to install the input device properly. See *4.2.1 Input Setting*.

- **Alert Sound:** Activates the computer alarm on motion and input-triggered detection.
- **IE Window Pops up:** The minimized Live View window pops up on motion and input-triggered detection.
- **Auto Snapshot:** The snapshot of live video is taken every 5 seconds on motion and input-triggered detection.
- **File Path:** Assigns a file path to save the snapshots.

3.2.7 Video and Audio Configuration

You can enable the microphone and speaker for two-way audio communication and adjust the audio volume. To change audio configuration, click the **Show System Menu** button (No. 9, Figure 3-3), and select **Video and Audio Configuration**.

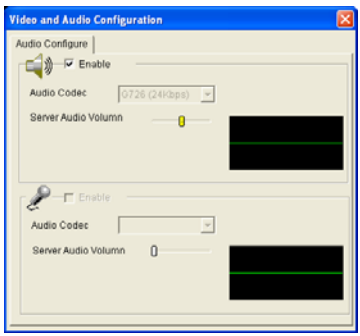


Figure 3-10

3.2.8 Remote Configuration

You can view the connection status of the central monitoring stations and upgrade firmware over the Internet. Click the **Show System Menu** button (No. 9, Figure 3-3), and select **Remote Config**. The Remote Config dialog box will appear.

[Status] In this tab, you can see the current status of the connection to Center V2 and VSM.

[Firmware Upgrade] In this tab, you can upgrade the firmware over the Internet. For details, see *Chapter 6 Advanced Applications*.

3.2.9 Camera Name Display

To display the streaming name on the image, click the **Show System Menu** button (No. 9, Figure 3-3), and select **Show Camera Name**.

3.2.10 Image Enhancement

To enhance the image quality of live video, click the **Show System Menu** button (No. 9, Figure 3-3), and select **Image Enhance**. This dialog box appears.

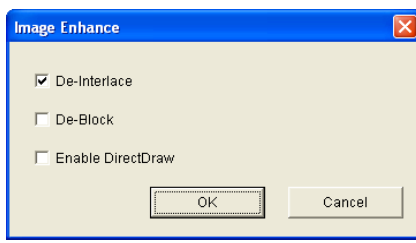


Figure 3-11

- **De-Interlace:** Coverts the interlaced video into non-interlaced video.
- **De-Block:** Removes the block-like artifacts from low-quality and highly compressed video.
- **Enable DirectDraw:** Activates the DirectDraw function.

3.2.11 I/O Control

The I/O Control window provides a real-time graphic display of camera status, I/O status, and alarm events. Additionally, you can remotely force output to be triggered.

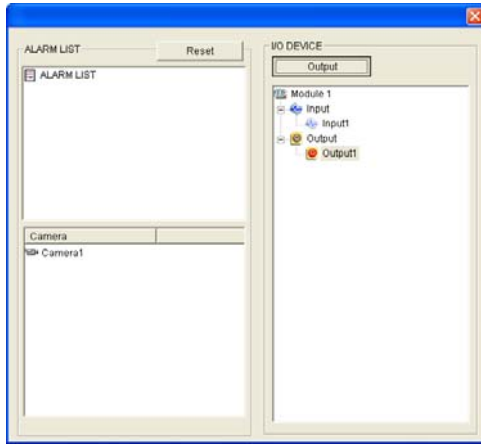


Figure 3-12

- To display the I/O control window, click the **I/O Control** button (No. 8, Figure 3-3).
- The Alarm List is displayed in three levels. The first level indicates date, the second indicates time, and the third indicates alarm ID. Clicking the **Reset** button will clear the list.
- To trigger an output device, highlight an output and then click the **Output** button.

3.2.12 Visual Automation

The Visual Automation allows you to change the current state of the electronic device by simply clicking on its image, e.g. turning the light ON. This feature is only available when the Visual Automation is set ahead by the Administrator. For details, see *4.1.6 Visual Automation.*

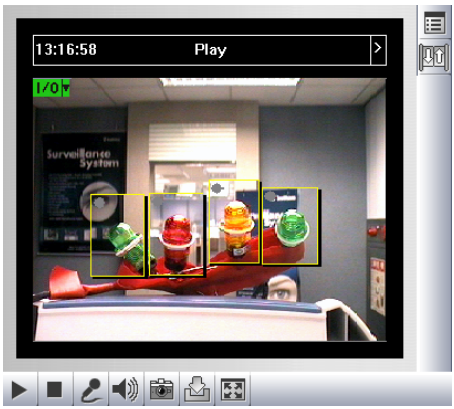


Figure 3-13

- To access this feature, click the **I/O Control** button (No. 9, Figure 3-3) and select **Visual Automation**.
- To change the style of the set areas, click the green **I/O** button on the top left corner. You will have these options:
  - **Show All:** Displays all set areas.
  - **Rect Float:** Embosses all set areas.
  - **Set Color:** Changes the frame color of all set areas

3.2.13 Network Status

To view the network status, in the left menu, click **Network** and select **Status**.

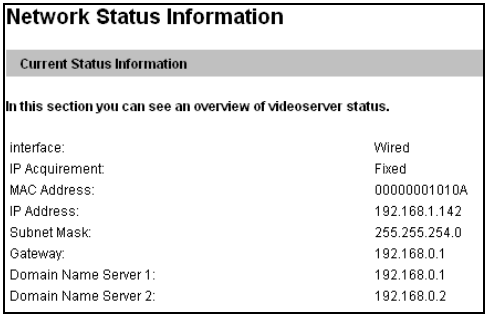


Figure 3-14

Chapter 4 Administrator Mode

The Administrator can access the system configuration through the network. Eight categories of configurations are involved in the system configuration: **Video and Motion**, **I/O Control**, **Events and Alerts**, **Monitoring**, **Recording Schedule**, **Remote ViewLog**, **Network** and **Management.**

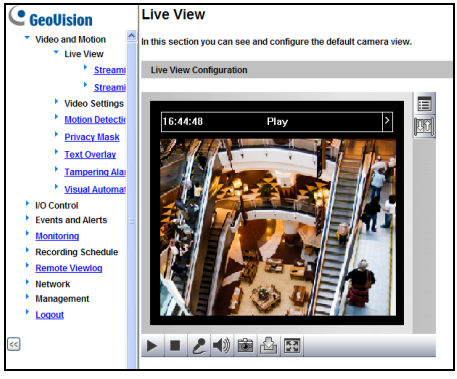


Figure 4-1

List of Menu Options

Find the topic of interest by referring to the section number prefixed to each option.

4.1 Video and Motion	4.1.1 Video Settings 4.1.2 Motion Detection 4.1.3 Privacy Mask 4.1.4 Text Overlay 4.1.5 Tampering Alarm 4.1.6 Visual Automation (Box Camera Only)
4.2 I/O Control (Box Camera Only)	4.2.1 Input Setting 4.2.2 Output Setting
4.3 Events and Alerts	4.3.1 Email 4.3.2 FTP 4.3.3 Center V2 4.3.4 VSM 4.3.5 Backup Center (Box Camera Only) 4.3.6 ViewLog (Box Camera Only) 4.3.7 3GPP
4.4 Monitoring	
4.5 Recording Schedule	4.5.1 Camera 4.5.2 I/O Monitor (Box Camera Only)
4.6 Remote Viewlog (Box Camera Only)	
4.7 Network	4.7.1 LAN 4.7.2 Wireless (Box Camera Only) 4.7.3 Advanced TCP/IP 4.7.4 IP Filtering
4.8 Management	4.8.1 Date and Time 4.8.2 GPS Maps Settings 4.8.3 Storage Settings (Box Camera Only) 4.8.4 User Account 4.8.5 Log Information 4.8.6 System Log (Box Camera Only) 4.8.7 Tools

4.1 Video and Motion

The GV-IPCAM H.264 can process one video stream in two different codec and image settings. Two setting pages **Streaming 1** and **Streaming 2** are provided for separate setup.

There is no function of **Watermark Setting, Audio in Source, Mechanical Iris Adjustment** or **Special View Setting** on the Streaming 2 setting page. Once you have set those four functions for Streaming 1, Streaming 2 will be applied with the same functions automatically. **TVOut** function is only available for Streaming 1.

This section includes the video image settings and how the images can be managed by using Motion Detection, Privacy Mask, Tampering Alarm and Visual Automation.

4.1.1 Video Settings

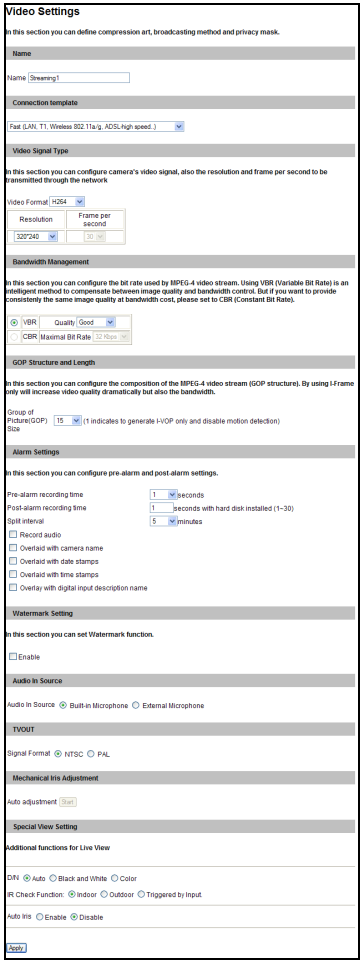


Figure 4-2

[Name] Rename the video stream. To display the name of video stream on the Live View window, see *3.2.9 Camera Name Display*.

[Connection Template] Select the type of your network connection. Unless you select **Customized**, this option will automatically bring up the recommended video resolution, frame rate, bandwidth and GOP size.

[Video Signal Type] The GV-IPCAM H.264 provides three codec options: **MPEG4**, **H.264** and **MJPEG**. And there are several options for selecting image resolutions: **1280 x 1024**, **640 x 480**, **360 x 240** and **176 x 144**. The frame rate to transmit images can reach 30 fps for all kinds of resolutions, except the resolution of 1280 x 1024. The resolution of 1280 x 1024 can only be applied to Streaming 1.

Most 3GPP mobile phone supports video streaming with MPEG4 video. Due to the limitation of the bandwidth for 3GPP, only 176 x 144 and 360 x 240 video resolutions will be supported for mobile phone setting. To change 3GPP port settings, see *4.3.7 3GPP*.

[Bandwidth Management] When using H.264 or MPEG4 it is possible to control the bitrate, which in turn allows the amount of bandwidth usage to be controlled.

- **VBR (Variable Bitrate):** The quality of the video stream is kept as constant as possible at the cost of a varying bitrate. The bandwidth is much more efficiently used than a comparable CBR.

  Set the image quality to one of the 3 standards: **Fair**, **Good**, and **Excellent**.

- **CBR (Constant Bitrate):** CBR is used to achieve a specific bitrate by varying the quality of the H.264 or MPEG4 stream. Select one of the bitrates from the drop-down list.

[GOP Structure and Length] Set the maximum number of frames in a GOP structure (the GOP size limit).

[Alarm Settings] The alarm settings allow you to capture images before and/or after the motion or I/O events happen.

- **Pre-alarm recording time:** Activates video recording before an event occurs. Set the recording time to 1 or 2 seconds. The recording is saved in the butter of the camera.
- **Post-alarm recording time:** Activates video recording onto the inserted memory card after an event occurs. Set the recording time from 1 to 30 seconds.
- **Split-interval:** Sets the time length between each event file from 1 to 5 minutes.
- **Record audio:** Activates audio recording when an event occurs.
- **Overlaid with camera name:** Includes streaming names on live and recorded videos.
- **Overlaid with date stamps:** Includes date stamps on live and recorded videos.
- **Overlaid with time stamps:** Includes time stamps on live and recorded videos.
- **Overlaid with digital input description:** Includes the name of the selected input on live and recorded videos.

[Watermark Setting] Enable this option to watermark all recordings. The watermark allows you to verify whether the video has been tampered while it was recorded. See *6.4 Verifying Watermark*.

[Audio In Source]

- **Built-in Microphone:** Enable the built-in microphone to record sounds.
- **External Microphone:** Note this feature is only available for **Box Camera**. Enable the externally connected microphone to record sounds.

[TVOut] Note this function is only available for **Box Camera**. Select the signal format of the Video Output (No. 7, Figure 1-1, No. 8, Figure 1-2) on the camera in either NTSC or PAL.

[Mechanical Iris Adjustment]

- **Auto adjustment:** The option is designed for auto iris lens (DC drive). Click **Start** to automatically adjust the auto iris lens and bring exposure to optimum. For the first-time user of auto iris lens, you must enable this option to make adjustment for the lens and re-log on to the camera.

[Special View Setting]

- **D/N:** Select **Auto** that will let the camera switch automatically to monochrome images in a poorly-lit scene. You can also switch either **Black and White** or **Color** images manually.
- **IR Check Function:** The option is designed to determine if the surveillance area is illuminated by the infrared light (from an infrared illuminator) or by sunlight. By the checking mechanism, the built-in IR cut filter can then work correctly with the D/N function. At night, the IR cut filter turns on to filter the infrared light and the image is switched to monochrome to produce better images. At day time, the IR cut filter turns off and the image is switched to color.
  - ⊙ **Indoor:** The default setting. The IR Check Function is enabled in this setting.
  - ⊙ **Outdoor:** The IR Check Function is disabled. It is suggested to enable this option when the color temperature of outdoor lighting is 6000 K or above.
  - ⊙ **Triggered by Input:** The D/N and IR Check functions are controlled by an input device connected to the camera, such as an infrared illuminator or timer.

Note: If an infrared illuminator is installed for outdoor surveillance, it is suggested to use the **Triggered by Input** function to avoid the wrong judgment of lighting and the incorrect action of the IR cut filter. See *1.7.3 Infrared Illuminators*.

- **Auto Iris:** The option is designed for auto iris lens (DC drive). Enable or disable the auto iris function.

4.1.2 Motion Detection

Motion detection is used to generate an alarm whenever movement occurs in the video image. You can configure up to 8 areas with different sensitivity values for motion detection.

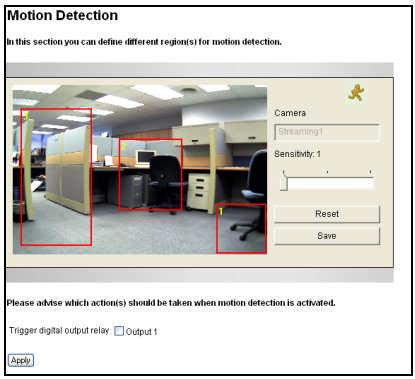


Figure 4-3

1. The default sensitivity value for the whole area is 2. To define a different sensitivity value, click **Reset**.
2. Select the desired sensitivity by moving the slider. There are three values. The higher the value, the more sensitive the camera is to motion.
3. Drag an area on the image. Click **Add** when you are prompted to confirm the setting.
4. To create several areas with different sensitivity values, repeat Steps 2 and 3.
5. Click **Save** to save the above settings.
6. If you want to trigger the alarm output when motion is detected, select **Output 1** and click the **Apply** button. To activate the output settings, you must also start **Input** monitoring manually or by schedule. For related settings, see *4.4 Monitoring*.

4.1.3 Privacy Mask

The Privacy Mask can block out sensitive areas from view, covering the areas with dark boxes in both live view and recorded clips. This feature is ideal for locations with displays, keyboard sequences (e.g. passwords), and for anywhere else you don't want sensitive information visible.

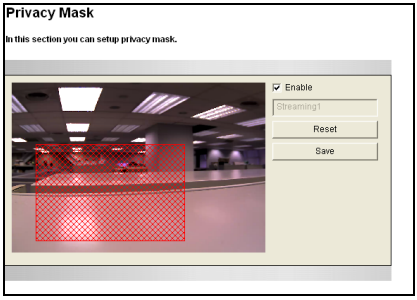


Figure 4-4

1. Select the **Enable** option.
2. Drag the area(s) where you want to block out on the image. Click **Add** when you are prompted to confirm the setting.
3. Click the **Save** button to save all the settings.

4.1.4 Text Overlay

The Text Overlay allows you to type any text in any place on the camera view. Up to 16 text messages can be created on one camera view. The overlaid text will be saved in the recordings.

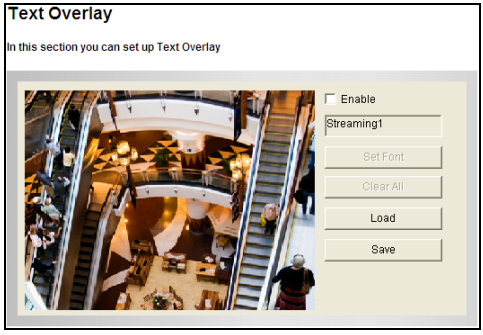


Figure 4-5

1. Select the **Enable** option.
2. Click any place on the image. This dialog box appears.

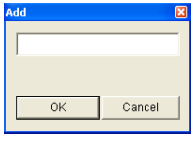


Figure 4-6

3. Type the desired text, and click **OK**. The text is overlaid on the image.
4. Click on the text and drag it to any place on the image.
5. Click **Set Font** to modify the font style of the text.
6. Click **Save** to apply the settings, or click **Load** (Undo) to revert to a previous setting.

4.1.5 Tampering Alarm

The Tampering Alarm is used to detect when a camera is being physically tampered. An alarm can be generated when the camera is moved, covered up, or out of focus. The alarm approaches include the triggered output device and e-mail alert. To have the tampering alarm, first set up these alarm approaches properly:

- To trigger the output device when a tampering event occurs, enable the output setting and select **Tampering Alarm**. See *4.2.2 Output Settings.*
- To trigger the e-mail alert when a tampering event occurs, enable the e-mail setting and select **Tampering Alarm**. See *4.3.1 E-Mail.*

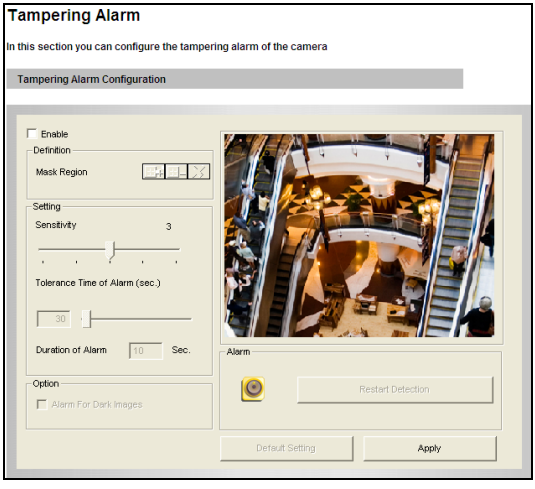


Figure 4-7

To configure the tampering alarm:

1. Select the **Enable** option.
2. If you want the camera to ignore any movement or scene change in certain areas, click the  button to drag areas on the camera view.
3. Select the desired detection sensitivity by moving the slider. The higher the value, the more sensitive the camera is to scene changes.
4. In the **Tolerance Time of Alarm** field, specify the time length allowed for scene changes before an alarm is generated.
5. In the **Duration of Alarm** field, specify the duration of the alarm after which the triggered output device will be turned off.
6. To trigger an alarm when the scene turns dark, e.g. the lens of camera has been covered, select **Alarm for Dark Images**.
7. Click **Apply** to save all the settings.
8. Start monitoring to enable the function. To have output alarm, it is required to start **Input** monitoring. See *4.4 Monitoring.*

When the camera has been tampered, the output device can be activated. To turn off the output device immediately, return to this setting page, and click **Restart Detection**.

4.1.6 Visual Automation

Note this function is only available for **Box Camera**

This intuitive feature helps you automate any electronic device by triggering the connected output device. When you click on the image of the electronic device, you can simply change its current state, e.g. light ON.

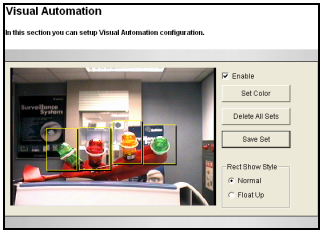


Figure 4-8

1. Select the **Enable** option.
2. Drag an area on the image of the electronic device. This dialog box appears.

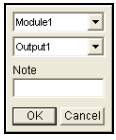


Figure 4-9

3. Assign the connected module and output device. In the Note field, type a note to help you manage the device. Click **OK** to save the settings.
4. To change the frame color of the set area, click the **Set Color** button.
5. To emboss the set area, select **Float Up**; or keep it flat by selecting **Normal**.
6. Click the **Save Set** button to apply the settings.
7. To perform the function, see *3.2.12 Visual Automation.*

4.2 Digital I/O Settings

Note the I/O function is only available for **Box Camera**.

The I/O terminal block, on the rear of the camera, provides the interface for one external alarm and sensor device. For details on the I/O terminal block, see *Chapter 9 I/O Terminal Block*.

4.2.1 Input Settings

To activate the sensor input, select **Enable**.

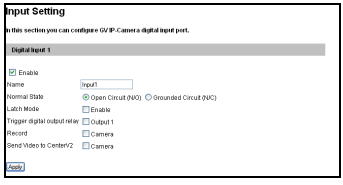


Figure 4-10

- **Normal State:** You can set the input state to trigger actions by selecting **Open Circuit (N/O)** or **Grounded Circuit (N/C)**.
- **Latch Mode:** Enable this option to have a momentary output alarm.
- **Trigger digital output relay:** When this option is enabled, the output will be triggered once the input is activated.
- **Record:** Enable this option to start recording when the input is triggered.
- **Send Video to Center V2:** Enable this option to send the images to Center V2 when the input is triggered.

Note: The functions of triggering the output, the recording and sending video to Center V2 only work after you start **Input** monitoring manually or by schedule. To configure the input monitoring, see *4.4 Monitoring*.

4.2.2 Output Settings

Select **Enable** to start the output device. Choose the output signal that mostly suits the device you are using: N/O (Open Circuit), N/C (Grounded Circuit), N/O Toggle, N/C Toggle, N/O Pulse or N/C Pulse. For **Toggle** output type, the output continues to be triggered until a new input trigger ends the output. For **Pulse** output type, the output is triggered for the amount of time you specify in the Trigger Pulse Mode for x Seconds field.

[Alarm Settings] You can choose to automatically trigger the digital output under these conditions: tampering alarm, disk write error (Rec Error) and hard disk full (HD Full).

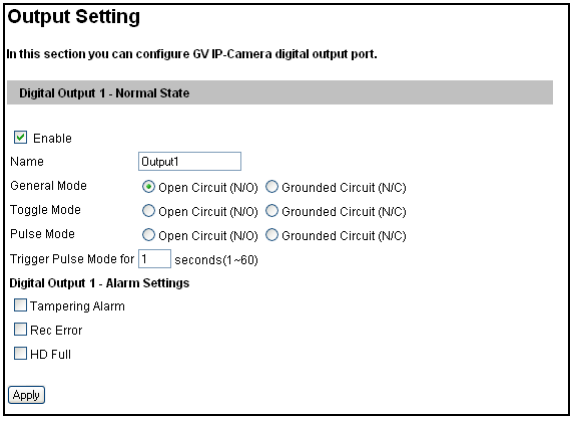


Figure 4-11

4.3 Events and Alerts

For the events of motion detection or I/O trigger, the Administrator can set up the two trigger actions:

1. Send a captured still image by E-mail or FTP.
2. Notify Center Monitoring Station, Center V2 or VSM, by video or text alerts.

To have above trigger actions, you must set the following functions in advance:

- Motion Detection (See *4.1.2 Motion Detection*)---Optional
- Input Setting (See *4.2.1 Input Setting*)
- For e-mail and FTP alerts, it is required to start monitoring (See *4.4 Monitoring*).

Note: The Motion Detection function is an optional setting since it is activated by default.

4.3.1 E-mail

After a trigger event, the camera can send the e-mail to a remote user containing a captured still image.

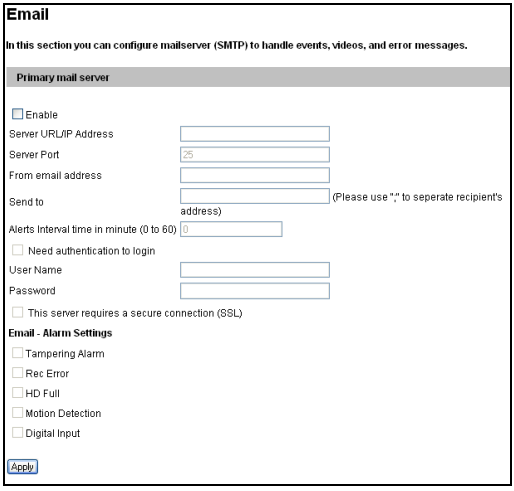


Figure 4-12

[Enable] Select to enable the e-mail function.

- **Sever URL/IP Address:** Type the URL address or IP address of the SMTP Server.
- **Server Port:** Modify the port number of the SMTP Server. Or keep the default value 25.
- **From email address:** Type the sender's e-mail address.
- **Send to:** Type the e-mail address(s) you want to send alerts to.
- **Alerts Interval Time:** Specify the interval between e-mail alerts. The interval is between 0 and 60 minutes. The option is useful for the frequent event occurrence, by which any event triggers during the interval period will be ignored.

[Need authentication to login] If the SMTP Server needs authentication, enable this option and type a valid username and password to log in the SMTP server.

[E-Mail Alarm Settings] You can choose to automatically send an e-mail alert under these conditions: tampering alarm, disk write error (Rec Error), hard disk full (HD Full) and motion detection.

For the related settings to send e-mail alerts, see *4.1.2 Motion Detection*, *4.2.1 Input Setting* and *4.4 Monitoring*.

4.3.2 FTP

You can also send the captured still image to a remote FTP server for alerts.

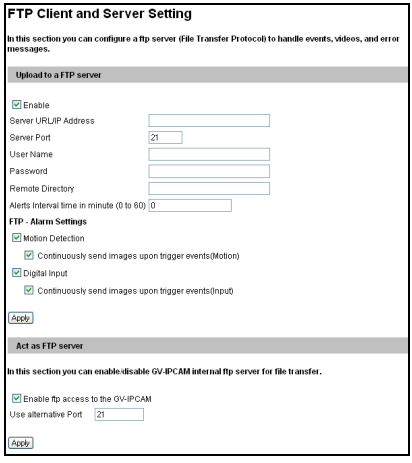


Figure 4-13

[Enable] Select to enable the FTP function.

- **Server URL/IP Address:** Type the URL address or IP address of the FTP Server.
- **Server Port:** Type the port number of the FTP Server. Or keep the default value 21.
- **User Name:** Type a valid user name to log into the FTP Server.
- **Password:** Type a valid password to log into the FTP Server.
- **Remote Directory:** Type the name of the storage folder on the FTP Server.

- **Alerts Interval time in minute:** Specify the interval between FTP alerts. The interval can be between 0 and 60 minutes. The option is useful for the frequent event occurrence by which any event triggers during the interval period will be ignored.

[Alarm Settings]

- **Motion Detection:** Once the motion is detected on the camera, a still image will be sent to the FTP Server.
  - ⊙ **Continuously send images upon trigger events (motion):** A sequence of snapshots is uploaded to the FTP Server when motion is detected on the camera.
- **Digital Input (for Box Camera Only):** Once the input is triggered, a still image will be sent to the FTP Server.
  - ⊙ **Continuously send images upon trigger events (input):** A sequence of snapshots is uploaded to the FTP Server when the input is triggered.

[Act as FTP Server]

- **Enable FTP access to the GV-IP Cam:** The camera acts as a FTP server, enabling users to download AVI files.
- **Use alternative port:** The default port is set to 21.

To access the internal FTP server through a web browser, enter the IP address or the domain name of the camera in your browser like this: ftp://192.168.0.10

When you are prompted for Username and Password, enter the default value **ftpuser** in both fields. Then you should find the AVI files recorded after trigger events.

To change login information of the internal FTP server, see *4.8.4 User Account*. For the related settings to send FTP alerts, see *4.1.2 Motion Detection*, *4.2.1 Input Settings* and *4.4 Monitoring*.

4.3.3 Center V2

After a motion or an I/O triggered event, the central monitoring station Center V2 can get notified by live videos and text alerts. For the live monitoring through Center V2, you must already have a subscriber account on Center V2.

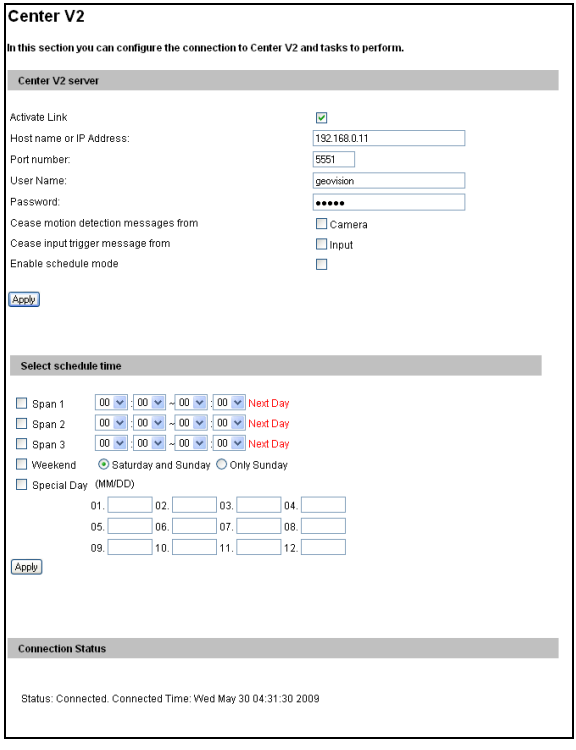


Figure 4-14

To enable the Center V2 connection:

1. **Activate Link:** Enable the monitoring through Center V2.
2. **Host Name or IP Address:** Type the host name or IP address of Center V2.
3. **Port Number:** Match the port to the Port 2 value on Center V2. Or keep the default value 5551.
4. **User Name:** Type a valid user name to log into Center V2.
5. **Password:** Type a valid password to log into Center V2.
6. Click **Apply.** The Connection Status should display “Connected” and connected time.

These options you can also find on this Center V2 setting page:

- **Cease motion detection messages from:** Stops notifying Center V2 of motion-triggered events.
- **Cease input trigger messages from (for Box Camera Only):** Stops notifying Center V2 of input-triggered events.
- **Enable schedule mode:** Starts the monitoring through Center V2 based on the schedule you set in the **Select Schedule Time** section. Refer to *4.5 Recording Schedule* for the same settings.

For related settings to activate the monitoring through Center V2, see *4.1.2 Motion Detection, 4.2.1 Input Setting*, and *8.1 Center V2*.

4.3.4 VSM

After a motion or an I/O triggered event, the central monitoring station VSM can get notified by text alerts. For the monitoring through VSM, you must already have a subscriber account on VSM.

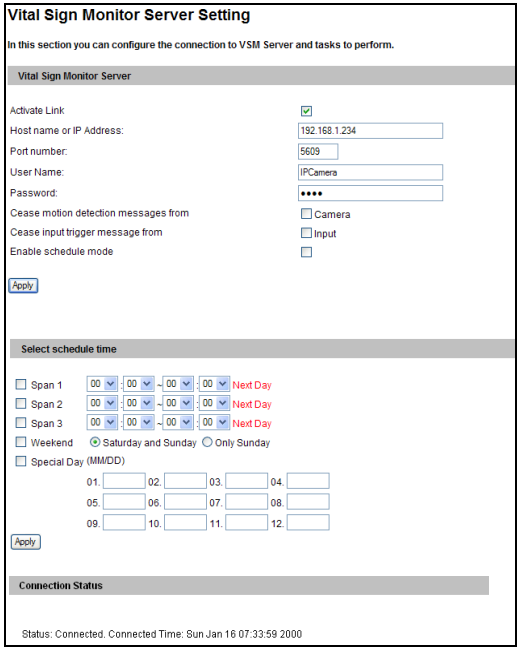


Figure 4-15

To enable the VSM connection:

1. **Activate Link:** Enable the monitoring through VSM.
2. **Host Name or IP Address:** Type the host name or IP address of VSM.
3. **Port Number:** Match the port to the Port 2 value on VSM. Or keep the default value 5609.

4. **User Name:** Type a valid user name to log into VSM.
5. **Password:** Type a valid password to log into VSM.
6. Click **Apply.** The Connection Status should display “Connected” and connected time.

These options you can also find on this VSM setting page:

- **Cease motion detection messages from:** Stops notifying VSM of motion-triggered events.
- **Cease input trigger messages from (for Box Camera Only):** Stops notifying VSM of input-triggered events.
- **Enable schedule mode:** Starts the monitoring through VSM based on the schedule you set in the **Select Schedule Time** section. Refer to *4.5 Recording Schedule* for the same settings.

For related settings to activate the monitoring through VSM, see *4.1.2 Motion Detection* and *4.2.1 Input Settings,* and *8.2 VSM*.

4.3.5 Backup Center

Note this function is only available for **Box Camera**.

The connection to the GV-Backup Center allows you to back up another copy of recordings and system log to the GV-Backup Center while the camera is saving these data to the memory card.

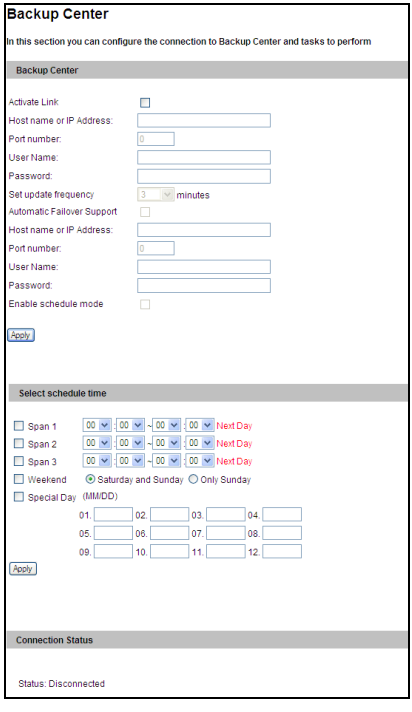


Figure 4-16

To enable the GV-Backup Center connection:

1. **Activate Link:** Enable the connection to the GV-Backup Center.
2. **Host Name or IP Address:** Type the host name or IP address of the GV-Backup Center.
3. **Port Number:** Match the communication port on the GV-Backup Center. Or keep the default value 30000.
4. **User Name:** Type a valid user name to log into the GV-Backup Center.
5. **Password:** Type a valid password to log into the GV-Backup Center.
6. **Set Update Frequency:** Set a duration time to check new video files from the camera and upload them to the GV-Backup Center.
7. **Enable Schedule Mode:** This setting is optional. Enable the GV-Backup Center connection on the schedule you set in the **Select Schedule Time** section. Refer to *4.5 Recording Schedule* for the same settings.
8. Click **Apply.** The Connection Status should display “Connected” and connected time.

If the GV-Backup Center has a failover server providing the uninterrupted backup services in case of the GV-Backup Center failure, you can configure the connection to the failover server.

1. **Automatic Failover Support:** Enable the automatic connection to the failover server once the connection between the camera and GV-Backup Center is interrupted for the specified time.
2. **Host Name or IP Address:** Type the host name or IP address of the failover center.
3. **Port Number:** Match the communication port on the failover server. Or keep the default value 30000.
4. **User Name:** Type a valid user name to log into the failover server.
5. **Password:** Type a valid password to log into the failover server.
6. Click **Apply.**

4.3.6 ViewLog Server

Note this feature is only available for **Box Camera**.

The ViewLog Server is designed for remote playback function. This server allows you to remotely access the recorded files saved at the GV-IPCAM H.264 and play back video with the player ViewLog.

Select **Enable** to activate the built-in server. Keep the default port **5552** or modify it if necessary. For details on the remote playback, see *5.2.2 Playback Using Remote ViewLog*.

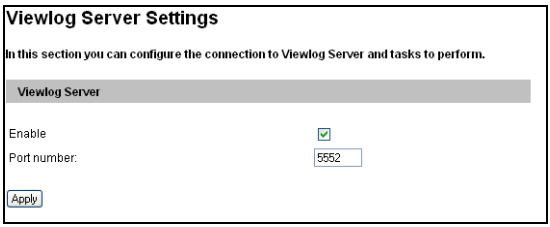


Figure 4-17

4.3.7 3GPP

The 3GPP Server enables video and audio streaming to your 3G-enabled mobile phone.

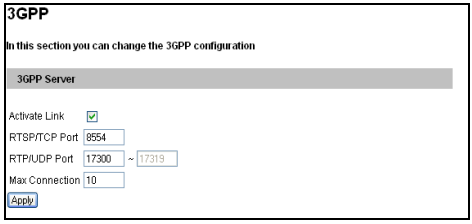


Figure 4-18

- **Activate Link:** Enable the 3GPP service.
- **RTSP/TCP Port:** Keep the default value 8554, or modify it if necessary.
- **RTP/UDP Port:** Keep the default range from 17300 to 17319, or modify it if necessary. The number of ports for use is limited to 20.
- **Max Connection:** Set the maximum number of connections to the GV-IPCAM H.264. The maximum value is 20.

For details on remote monitoring with mobile phones, see *Chapter 10 Remote Monitoring with Mobile Phones*.

4.4 Monitoring

You can start monitoring manually, by schedule or by input trigger.

Note: See ***Note for Recording*** at the beginning of the manual.

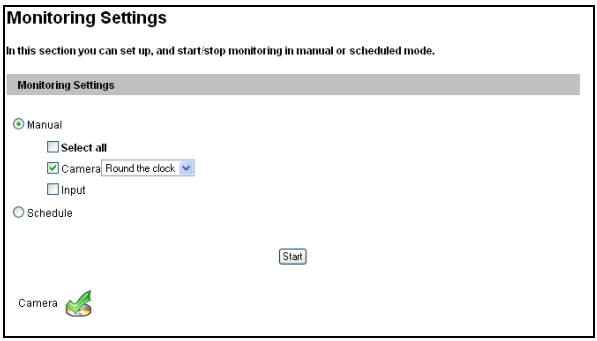


Figure 4-19

[Manual] Manually activates motion detection and I/O monitoring. Select one of the following options and then click the **Start** button.

- **Select all:** Manually starts both motion detection and I/O monitoring.
- **Camera:** Manually starts recording. Select the desired recording mode for recording.
- **Input (for Box Camera Only):** Manually starts I/O monitoring. When the sensor input is triggered, its associated camera and output will be activated for recording and alerting. For this setting, see *4.2.1 Input Setting*.

[Schedule] The system starts motion detection and I/O monitoring according to the schedule you have set. For schedule settings, see *4.5 Recording Schedule*.

[Camera Status Icon]

 : On standby

: Enabled for motion detection and input trigger

4.5 Recording Schedule

The schedule is provided to activate recording and I/O monitoring on a specific time each day.

4.5.1 Recording Schedule Settings

You can set the schedule for recording.

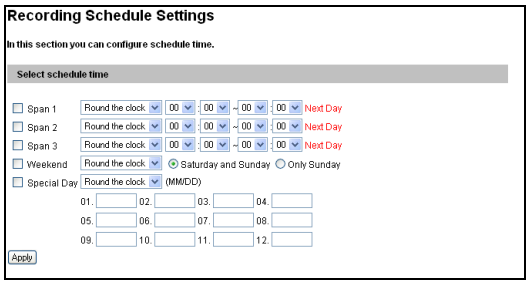


Figure 4-20

- **Span 1- Span 3:** Set a different recording mode for each time frame during the day. Each day can be divided into 3 time frames, represented by Span 1 to Span 3.
- **Weekend:** Enable this option to start monitoring all day on the weekend and select the recording mode to be used. Define whether your weekend includes **Saturday and Sunday** or **Only Sunday**.
- **Special Day:** Set the recording mode on a specified day.

4.5.2 I/O Monitoring Settings

Note this function is only available for **Box Camera**.

You can set the schedule for I/O monitoring to start.

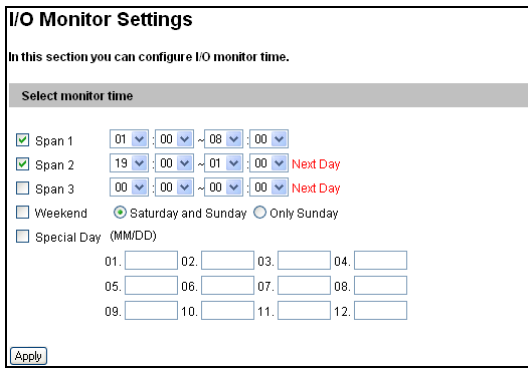


Figure 4-21

- **Span 1- Span 3:** Set different time frames during the day to enable I/O monitoring. Each day can be divided into 3 time frames, represented by Span 1 to Span 3.
- **Weekend:** Enable this option to start I/O monitoring all day on the weekend and define whether your weekend includes **Saturday and Sunday** or **Only Sunday**.
- **Special Day:** Enable I/O monitoring on a specified day.

Note: In Recording Schedule and I/O Monitoring Schedule, if the settings for Special Day conflict with those for Span 1-3 or Weekend, the Special Day settings will get priority.

4.6 Remote ViewLog

Note this function is only available for **Box Camera**.

With the Remote ViewLog function, you can play back the files recorded at the GV-IPCAM H.264 over TCP/IP network.

For the first-time user, you need to install the Remote ViewLog program from the Software DVD. For remote access to the camera, the ViewLog Server built in the unit must be enabled. See *4.3.5 ViewLog Server.*

For details on connecting to the camera for playback , see *5.2.2 Playback Using Remote ViewLog.*

4.7 Network

The Network section includes some basic but important network configurations that enable the camera to be connected to a TCP/IP network.

4.7.1 LAN

According to your network environment, select among Static IP, DHCP and PPPoE.

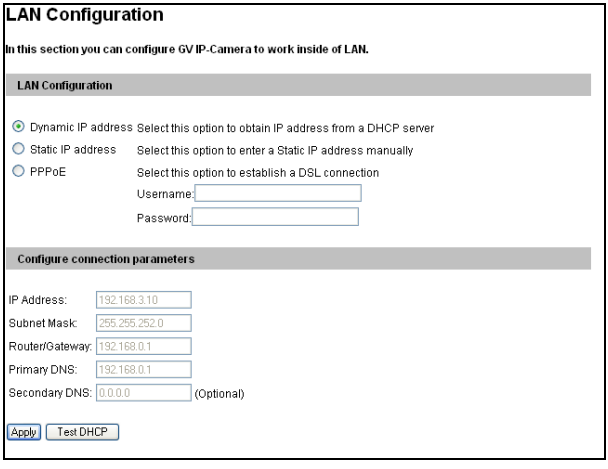


Figure 4-22

[LAN Configuration]

- **Dynamic IP address:** The network environment has a DHCP server. This option should only be enabled if you know which IP address the camera will get from the DHCP server, or you have obtained a domain name from the DDNS service provider that always links to the camera's changing IP address.
- **Static IP address:** Assign a static IP or fixed IP to the camera. Type the camera's TCP/IP and DNS parameters in the **Configure connection parameters** section.
- **PPPoE:** The network environment is xDSL connection. Type the Username and Password provided by ISP to establish the connection. If you use the xDSL connection with dynamic IP addresses, first use the DDNS function to obtain a domain name linking to the camera's changing IP address.

[Configure connection parameters]

Type the camera's IP address, Subnet Mask, Router/Gateway, Primary DNS server and Secondary DNS server.

Parameters	Default
IP address	192.168.0.10
Subnet Mask	255.255.255.0
Router/Gateway	192.168.0.1
Primary DNS server	192.168.0.1
Secondary DNS server	192.168.0.2

For details on Dynamic DNS Server Settings, *see 4.7.3 Advanced TCP/IP.*

4.7.2 Wireless-Client Mode

The wireless function is available on the models: **GV-BX010DW** and GV-**BX110DW**.

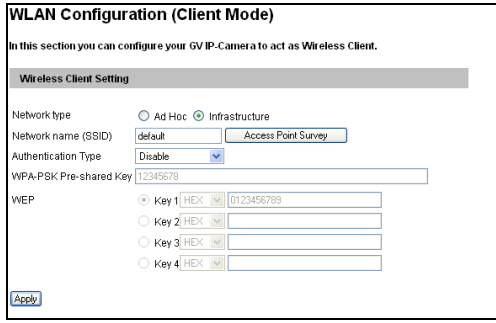


Figure 4-23

- **Network type:** Select the network mode **Ad Hoc** or **Infrastructure**.
  - ⊙ **Infrastructure:** Via the Access Point to connect to the Internet. This mode further gives wireless access to the Internet or data sharing under a previously wired environment.
  - ⊙ **Ad-Hoc:** A Peer-to-Peer mode. This mode connects to other computer with the WLAN card, and does not need the Access Point to connect to each other.
- **Network name (SSID):** The SSID (Service Set Identify) is a unique name that identifies a particular wireless network. Type SSID of the Wireless LAN group or Access Point you are going to connect to.
  - ⊙ **Access Point Survey:** Click this button to search all the available Access Points (Infrastructure mode) and wireless stations (AD-Hoc mode) within the range of your WLAN card.

- **Authentication Type:** Select one of these network authentications and data encryptions: **Disable**, **WEP**, **WPAPSK-TKIP**, **WPAPSK-AES**, **WPA2PSK-TKIP** or **WPA2PSK-AES**.
  - ⊙ **Disabled:** No authentication is needed within the wireless network.
  - ⊙ **WEP (Wired Equivalent Privacy):** A type of data encryption. Type up to four WEP Keys in HEX or ASCII format. Note that if you use HEX format, only digits 0-9 and letters A-F, a-f are valid.
  - ⊙ **WPAPSK-TKIP** and **WPA2PSK-TKIP:** Type WPA-PSK (Pre-Shared Key) for data encryption.
  - ⊙ **WPAPSK-AES** and **WPA2PSK-AES:** Type WPA-PSK (Pre-Shared Key) for data encryption.

Note: Your encryption settings must match those used by the Access Points or wireless stations with which you want to associate.

4.7.3 Advanced TCP/IP

This section introduces the advanced TCP/IP settings, including DDNS Server, HTTP port, streaming port and UPnP.

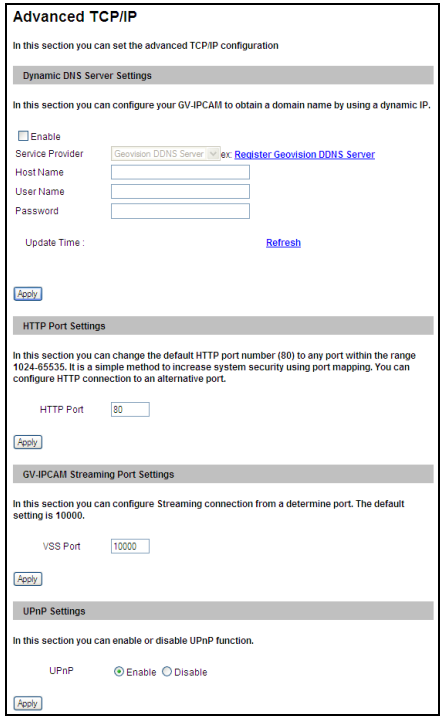


Figure 4-24

[Dynamic DNS Server Settings] DDNS (Dynamic Domain Name System) provides a convenient way of accessing the camera when using a dynamic IP. DDNS assigns a domain name to the camera, so that the Administrator does not need to go through the trouble of checking if the IP address assigned by DHCP Server or ISP (in xDSL connection) has changed.

Before enabling the following DDNS function, the Administrator should have applied for a Host Name from the DDNS service provider's website. There are 2 providers listed in the camera: GeoVision DDNS Server and DynDNS.org.

To enable the DDNS function:

1. **Enable:** Enable the DDNS function.
2. **Service Provider:** Select the DDNS service provider you have registered with.
3. **Host Name:** Type the host name used to link to the camera. For the users of GeoVision DDNS Server, it is unnecessary to fill the field because the host name will be detected and brought up automatically.
4. **User Name:** Type the user name used to enable the service from the DDNS.
5. **Password:** Type the password used to enable the service from the DDNS.
6. Click **Apply**.

[HTTP Port Settings] The HTTP port enables connecting the camera to the web. For security integration, the Administrator can hide the server from the general HTTP port by changing the default HTTP port of 80 to a different port number within the range of 1024 through 65535.

[GV-IPCAM Streaming Port Settings] The VSS port enables connecting the camera to the GV-System. The default setting is 10000.

[UPnP Settings] UPnP (Universal Plug & Play) is a networking architecture that provides compatibility among networking equipment, software and peripherals of the 400+ vendors that are part of the Universal Plug and Play Forum. It means that they are listed in the network devices table for the operating system (such as Windows XP) supported by this function. Enabling this function, you can connect to the camera directly by clicking on the camera listed in the network devices table.

4.7.4 IP Filter Settings

The Administrator can set IP filtering to restrict access to the camera.

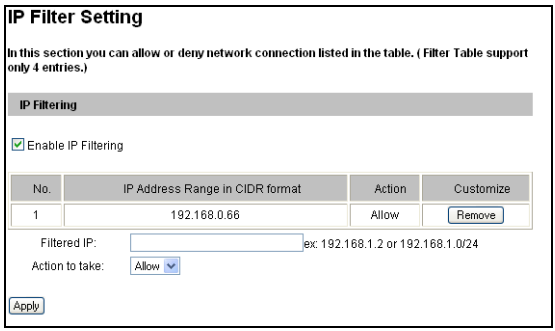


Figure 4-25

To enable the IP Filter function:

1. **Enable IP Filtering:** Enable the IP Filter function.
2. **Filtered IP:** Type one IP address or a range of IP addresses you want to restrict the access.
3. **Action to take:** Select the action of **Allow** or **Deny** to be taken for the IP address(es) you have specified.
4. Click **Apply**.

4.8 Management

The Management section includes the settings of data and time and user account. You can also view the firmware version and execute certain system operations.

4.8.1 Date & Time Settings

The date and time settings are used for date and time stamps on the image.

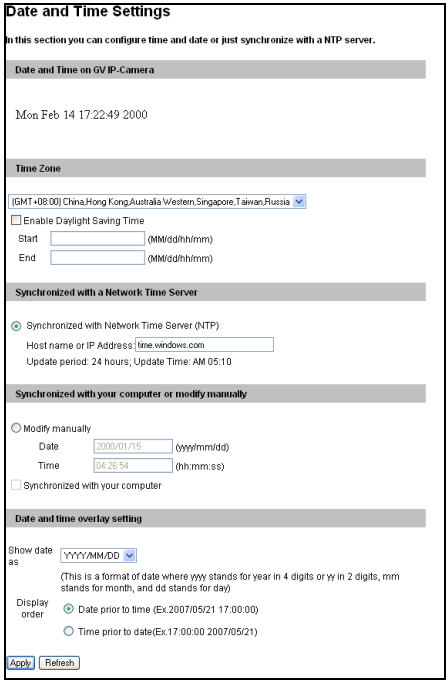


Figure 4-26

[Date & Time on GV-IP Camera] Displays the current date and time on the camera.

[Time Zone] Sets the time zone for local settings. Select **Enable Daylight Saving Time** to automatically adjust the camera for daylight saving time. Type the Start Time and End Time to enable the daylight saving function. Also see *5.2.4 Playback of Daylight Saving Time Events*.

[Synchronized with a Network Time Server] By default, the camera uses the timeserver of time.windows.com to automatically update its internal clock every 24 hours. You can also change the host name or IP setting to the timeserver of interest.

[Synchronized with your computer or modify manually] Manually changes the camera's date and time. Or, synchronize the camera's date and time with those of the local computer.

[Overlaid Date and Time Settings] Select the display format of date and time stamps on the image. For this function to work, you must also enable the **Overlaid with date stamps** and **Overlaid with time stamps** options in Figure 4-2.

4.8.2 GPS Maps Settings

The Maps Settings allows you to see the location of your GV-IPCAM H.264 on Google maps, without a GPS device.

To see the location of your camera on maps:

1. It is required to sign up for a Google Maps API key before using the Google Maps. Click **Link to the Google Maps API**.

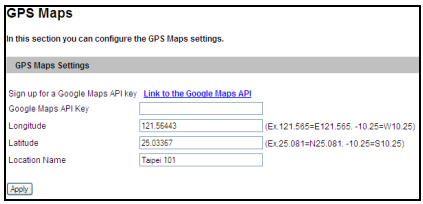


Figure 4-27

2. Enter the registered Maps API Key, the longitude and latitude of your camera, and location name. Click **Apply** to enable this function.
3. Open the control panel of the Live View window.

Figure 4-28

4. Click **Open**. A warning message appears.

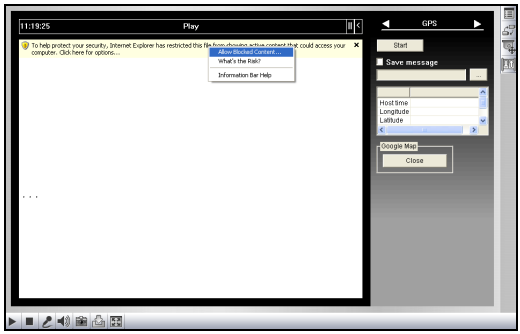


Figure 4-29

5. Right-click the warning message and select **Allow Blocked Content**. The map will be displayed. The icon indicates the location of your camera. At the upper right corner you have options to view different map formats, such as Satellite and Hybrid.

Figure 4-30

4.8.3 Storage Settings

Note this function is only available for **Box Camera**.

Based on Linux ext3 file system, the GV-IPCAM H.264 supports memory cards for video and audio recordings. You need to format the memory card by using the following Storage Settings. After being formatted, the memory card will be ready to use by Linux OS of the camera.

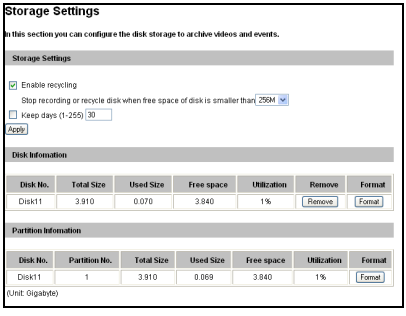


Figure 4-31

[Storage Settings]

If **Enable recycling** is selected, when the space of the storage device is lower than the specified space, the system will overwrite the oldest recorded files.

If **Enable recycling** is not selected, the system will stop recording when the specified space is reached.

[Keep days (1-255)] Specify the number of days to keep the files from 1 day to 255 days. When both **Keep days** and **Enable recycling** are selected, the system applies whichever condition comes first. For example, if the specified smallest amount of storage space comes earlier than the designated keep days, then recycle is applied first.

[Disk Information]

This section shows the details of the attached storage device.

[Partition Information]

This section shows the partition details of the attached storage device.

To add a memory card:

1. Insert the memory card to the camera.
2. Click the **Format** button.
3. After the format is complete, the partition information will display. The maximum space for one partition is 200 GB.

To remove a memory card:

1. Click the **Remove** button.
2. When you are prompted to ensure the action, click **Yes**. The page will be refreshed and the partition information will be cleaned.
3. Remove the memory card from the camera.

Note:

1. If **Enable Recycle** is selected, the available space of the storage device must be higher than the space you specified at the **Stop recording or recycle disk when free space of disk is smaller than x** option. Otherwise no video will be recoded.
2. The recording data may be lost if you remove the USB mass storage device during recording.
3. If you do not remove the storage device properly, the data cannot be read in another computer. In this case, re-plug the storage device back to the camera. The system will repair the data automatically. When the system is repairing the data, the Remove field will display “Repairing”.

4.8.4 User Account

You can change the login name and password of Administrator and Guest. The default Administrator login name and password are **admin**; the default Guest login name and password are **guest**. To allow a Guest user log in without entering name and password, select **Disable authentication for guest account**.

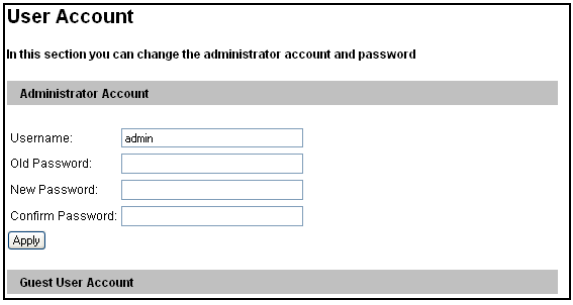


Figure 4-32

4.8.5 Log Information

The log information contains dump data that is used by service personnel for analyzing problems.

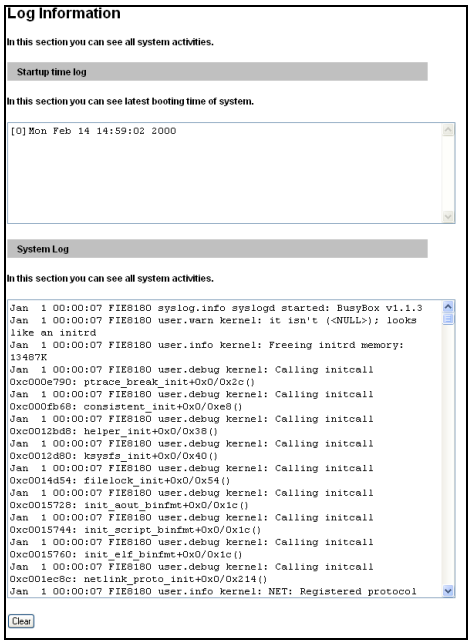


Figure 4-33

4.8.6 System Log

Note this function is only available for **Box Camera**.

The System Log records the events in the four types of logs: **System Event**, **Monitoring Event**, **I/O Event** and **Login/Logout**. With the System Log, you can search and obtain the detailed information of an event. To use the System Log, a memory card is required to insert to the camera.

1. For the first-time user of the System Log, first click **Create** to create a log database (access file) on the memory card.

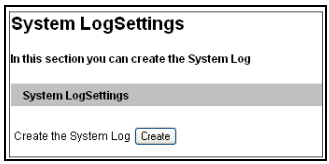


Figure 4-34

Note: If you have created the System Log on the memory card, clicking **Create** again will clean your System Log.

2. Select the log type **System Event**, **Monitoring Event**, **I/O Event** or **Login/Logout** from the left menu of the Web interface.
3. Specify the filtering criteria. For example, we want to know the login and logout information during a specific period of time.

4. Click **Query**. The filtering results may look like the figure below.

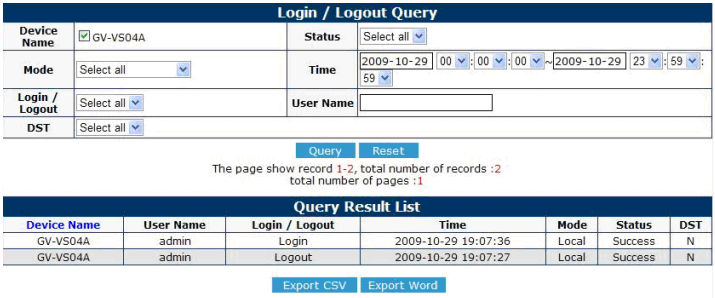


Figure 4-35

4.8.7 Tools

You can execute certain system operations and view the firmware version.

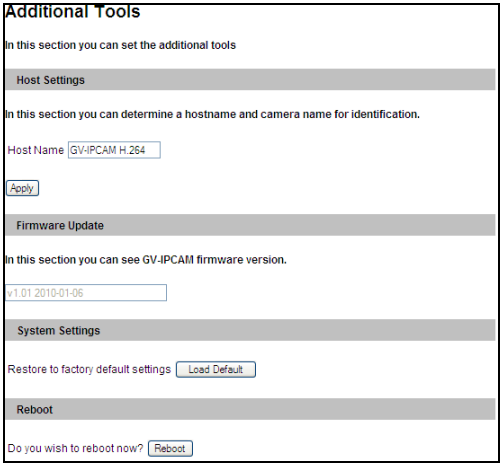


Figure 4-36

[Host Settings] Enter a descriptive name for the camera.

[Firmware Update] This field displays the firmware version of the camera.

[System Settings] Clicking the **Load Default** button will make the camera restore factory default settings.

Note: After applying the default function, you need to configure the camera's network setting again.

[Reboot] Clicking the **Reboot** button will make the camera perform software reset.

Chapter 5 Recording and Playback

Note this chapter and the function is only available for **Box Camera**.

The GV-IPCAM H.264 can record video and audio directly to the memory card. You can play back the recorded files on the GV-System or over the TCP/IP network.

Note: See ***Note for Recording*** at the beginning of the manual.

5.1 Recording

To enable the recording function:

1. Insert the memory card to the camera. See “To add a memory card”, *4.8.3 Storage Settings*.
2. If you like to set up the pre-recording, post-recording or audio recording, see *4.1.1 Video Settings*.
3. If you like to set up the schedule for video recording or I/O monitoring, see *4.5 Recording Schedule*.
4. If you like to configure the areas and sensitivity values for motion detection, see *4.1.2 Motion Detection*.
5. If you want the recording to be triggered by input device, configure the operation of input device. See *4.2.1 Input Settings*.
6. To start recording and I/O monitoring, see *4.4 Monitoring*.

The camera will start recording in case of motion detection, I/O trigger, or during the scheduled time.

5.2 Playback

These methods are available to play back the video files recorded at the GV-IPCAM H.264:

- Playback by using the memory card by connecting it directly to the GV-System through a memory card reader
- Playback by using the Remote ViewLog function over the TCP/IP network
- Playback by using the recorded files downloaded from built-in FTP Server

5.2.1 Playback Using the Memory Card

You can play back the files recorded at the GV-IPCAM H.264 by connecting the memory card to GV-System through a memory card reader. However, GV-System is run on Windows system while the files recorded at the GV-IPCAM H.264 is of Linux file system. To enable Windows to recognize the files, you need to install the program **Ext2 Installable File System** included on the Software CD.

1. Insert the Software CD, select **IFS Drives** and follow the onscreen instructions for installation.
2. Run **IFS Drives** from Control Panel, and assign the drive name(s) to each available partition in the storage device.

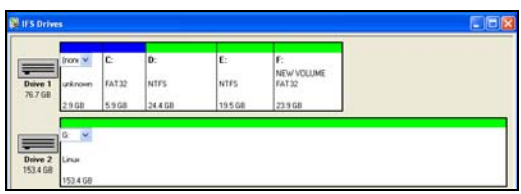


Figure 5-1

3. Run **ViewLog**.
4. Click the **Advanced** button  select **Reload Database** and click **Video Server/Compact DVR**. This dialog box appears.

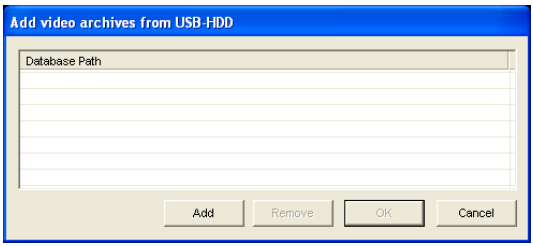


Figure 5-2

5. Click **Add** to assign the hard drive.
6. Click **OK** to load the data to the ViewLog for playback.

5.2.2 Playback over Network

With the Remote ViewLog function, you can play back the files recorded at the GV-IPCAM H.264 over TCP/IP network.

1. The camera needs to allow the remote access with **ViewLog Server** activated. See *4.3.6 ViewLog Server*.
2. For the first time user, run the **Remote ViewLog** program from the Software CD. Next time whenever you like to use this function, access this option from the camera's Web interface.
3. When this dialog box appears, type the camera's IP address, login ID and password. Keep the default port **5552** or modify it if necessary.

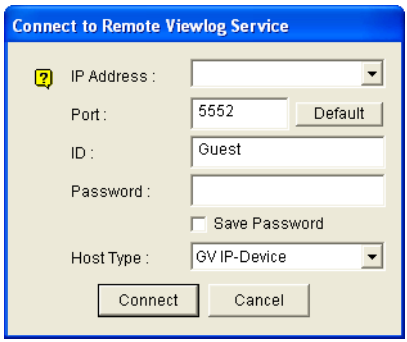


Figure 5-3

3. In the Host Type field, select **GV-IP Device**.
4. Click **Connect** to access the files of the camera for playback.

5.2.3 Access to the Recorded Files through FTP Server

The built-in FTP Server allows you to download the recorded files saved on the memory card. You can play back the downloaded files of AVI format with any multimedia player. For details to download files, see [Act as FTP Server], *4.3.2 FTP*.

5.2.4 Playback of Daylight Saving Time Events

On GV-System, you can retrieve the events recorded during the Daylight Saving Time (DST) period from the GV-IPCAM H.264 for playback. You can also connect the memory card to GV-System for playback.

The following instructions describe how to retrieve the recorded files from the GV-IPCAM H.264 over network. If you like to use the memory card for playback, first follow the instructions in *5.2.1 Playback Using the Memory Card t*o load the recorded files to ViewLog, and then follow Steps 4-5 below to play back DST events.

1. The camera must allow the remote access with **ViewLog Server** activated. See *4.3.6 ViewLog Server*.
2. To remotely connect to the camera from GV-System, click the **Tools** button and select **Remote ViewLog Service**. The Connect to Remote ViewLog Service dialog box appears.
3. Enter the connection information of the camera, and click **Connect**. Once the connection is established, the video events will be displayed on the Video Event list.

4. On the Date Tree, select the date of Daylight Saving Time. A separate DST subfolder will be displayed as illustrated below.

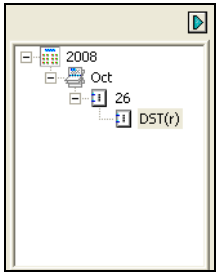


Figure 5-4

5. On the Video Event list, select desired events, and click the **Play** button to start.

Note:

1. The playback function is only compatible with the GV-System of version 8.3 or later.
2. The AVI file recorded during the DST period is named with the prefix “GvDST”, e.g. GvDST20081022xxxxxxxxx.avi, to differentiate from the regular AVI file named with the prefix “Event”, e.g. Event20081022xxxxxxxxx.avi.

Chapter 6 Advanced Applications

This chapter introduces more advanced applications.

6.1 Upgrading System Firmware

GeoVision will periodically release the updated firmware on the website. The new firmware can be simply loaded into the GV-IPCAM H.264 by using the Web interface or IP Device Utility included in the Software CD.

Important Notes before You Start

Before you start updating the firmware, please read these important notes:

1. While the firmware is being updated,
   A) the power supply must not be interrupted, and
   B) do not unplug the Ethernet cable if the cable is the source of power supply (Power over Ethernet or PoE supported).
2. Do not turn the power off in 10 minutes after the firmware is updated.
3. If you use the IP Device Utility for firmware upgrade, the computer used to upgrade firmware must be under the same network of the camera.

WARNING: The interruption of power supply during updating causes not only update failures but also damages to the camera. In this case, please contact your sales representative and send your device back to GeoVision for repair.

6.1.1 Using the Web Configuration Interface

1. In the Live View window, click the **Show System Menu** button (No. 9, Figure 3-3), select **Remote Config**, and then click the **Firmware Upgrade** tab. This dialog box appears.

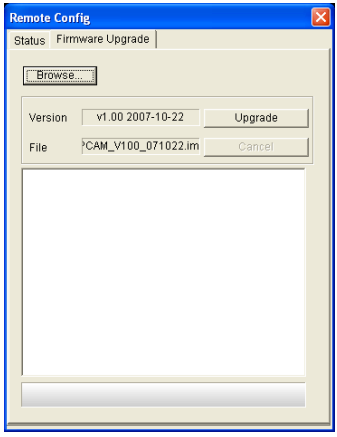


Figure 6-1

2. Click the **Browser** button to locate the firmware file (.img) saved at your local computer.
3. Click the **Firmware Upgrade** button to start the upgrade.

6.1.2 Using the IP Device Utility

The IP Device Utility provides a direct way to upgrade the firmware to multiple units of GV-IPCAM H.264. Note the computer used to upgrade firmware must be under the same network of the camera.

1. Insert the Software CD, select **IP Device Utility**, and follow the onscreen instructions to install the program.
2. Double-click the **IP Device Utility** icon created on your desktop. This dialog box appears.

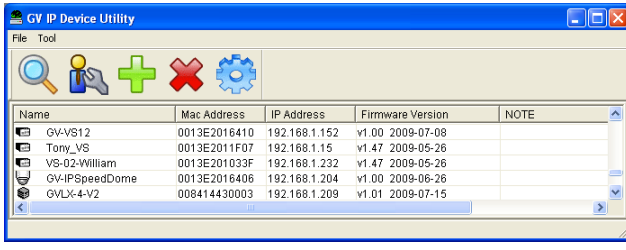


Figure 6-2

3. Click the **Search** button to locate available cameras on the same LAN. Or click the **New** button and assign the IP address to locate the camera over the Internet. Or highlight one camera in the list and click the **Delete** button to remove it.

4. Double-click one camera in the list. This dialog box appears.

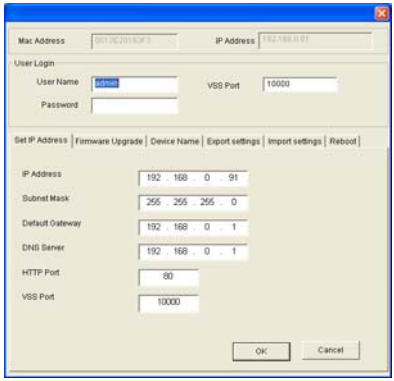


Figure 6-3

5. Click the **Firmware Upgrade** tab. This dialog box appears.

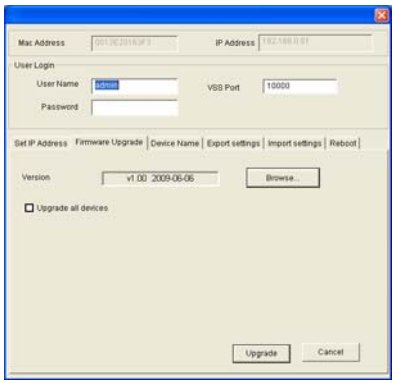


Figure 6-4

6. Click the **Browse** button to locate the firmware file (.img) saved at your local computer.
7. If you like to upgrade all the cameras in the list, select **Upgrade all devices**.
8. Type **Password**, and click **Upgrade** to start the upgrade.

6.2 Backing Up and Restoring Settings

With the IP Device Utility included in the Software CD, you can back up the configurations in the GV-IPCAM H.264, and restore the backup data to the current camera or import it to another camera.

To back up the settings:

1. Run **IP Device Utility** and locate the desired camera. See Steps 1-3 in *6.1.2 Using the IP Device Utility*.
2. Double-click the camera in the list. Figure 6-3 appears.
3. Click the **Export Settings** button. This dialog box appears.

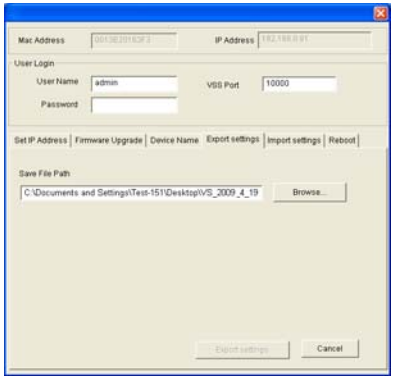


Figure 6-5

4. Click the **Browse** button to assign a file path.
5. Type **Password**, and click the **Export Settings** button to save the backup file.

To restore the settings:

1. In Figure 6-3, click the **Import Settings** tab. This dialog box appears.

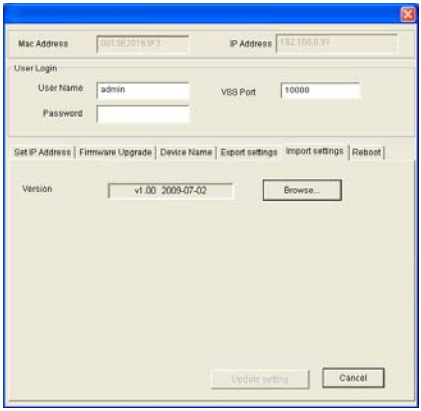


Figure 6-6

2. Click the **Browse** button to locate the backup file (.dat).
3. Click the **Update Settings** button to start restoring.

6.3 Restoring to Factory Default Settings

To restore to default settings, follow the steps below.

Box Camera:

1. Unplug the power cable and the network cable to start.
2. Press and hold the **Default** button (No. 4, Figure 1-1) on the back panel of the camera.
3. Plug the power cable. The status LED on the front panel of the camera turns red.
4. Wait until the status LED turns off. This may take about 10 seconds.
5. Soon after the status LED turns off, it turns red again and a clicking sound appears. Then you can release the **Default** button and the process of loading default values is complete.

Mini Fixed Dome:

1. Unplug the network cable to start.
2. Unscrew the camera's cover.
3. Press and hold the **Default** button (No. 1, Figure 1-3) while plugging the network cable.
4. Wait until the network status LED turns off. This may take about 40 seconds.
5. Soon after the network status LED turns off, release the **Default** button. The process of loading default values is complete.

6.4 Verifying Watermark

The watermark is an encrypted and digital signature embedded in the video stream during the compression stage, protecting the video from the moment of creation. Watermarking ensures that an image is not edited or damaged after it is recorded. To enable the watermark function, see [Watermark Setting], *4.1.1 Video Settings*.

The **Watermark Proof** is a watermark-checking program. It can verify the authenticity of the recording before you present it in court.

6.4.1 Accessing AVI Files

To verify watermark, first you have to access the recorded AVI files by one of these methods:

1. Use the **File Save** function on the Live View window (Figure 4-1) to start recording on the local computer.
2. Use the **Act as FTP Server** function to download AVI files from the GV-IPCAM H.264. See *4.3.2 FTP*.
3. Use the files recorded on the memory card. Since the files saved on the memory card are of Linux file system, remember to run **IFS Drives** from the Software CD to convert the Linux-based files to Windows-based files. For the instructions, see Steps 1 to 2 in *5.2.1 Playback Using the Memory Card*.

6.4.2 Running Watermark Proof

1. Install **Watermark Proof** from the Software CD. After installment, a **WMProof** icon is created on your desktop.
2. Double-click the created icon. The Water Mark Proof window appears.
3. Click **File** from the menu bar, select **Open** and locate the recording (.avi). The selected recording is then listed on the window. Alternatively, you can drag the recording directly from the storage folder to the window.
4. If the recording is unmodified, a check mark will appear in the **Pass** column. On the contrary, if the recording is modified or does not contain watermark during recording, a check mark would appear in the **Failed** column. To review the recording, double-click the listed file on the window.

6.4.3 The Watermark Proof Window

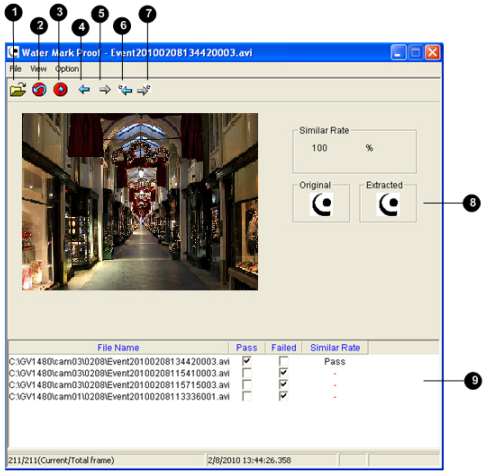


Figure 6-7

The controls in the window:

No.	Name	Description
1	Open File	Opens the recording.
2	First Frame	Goes to the first frame of the file.
3	Play	Plays the file.
4	Previous Frame	Goes to the previous frame of the file.
5	Next Frame	Goes to the next frame of the file.
6	Previous Watermarked Frame	Goes to the previous frame that contains watermark.
7	Next Watermarked Frame	Goes to the next frame that contains watermark.
8	Original vs. Extracted	The Extracted icon should be identical with the Original icon. If not, it indicates the recording has been tampered.
9	File List	Displays the proof results.

Chapter 7 DVR Configurations

The GV-System provides hybrid solution, integrating the digital videos from IP cameras with other analog videos. For the digital videos, the GV-System provides the complete video management, such as video viewing, recording, playback, alert settings and almost every feature of the system. Following is the integration specifications:

- For Box camera, GV-System Version 8.3.2 or later is required. For Mini Fixed Dome, GV-System Version 8.3.3 or later is required.
- The maximum number of connections to the GV-IPCAM H.264 is 20. When one GV-System connects to one GV-IPCAM H.264, it takes up to 4 connections. When the user connects to one GV-IPCAM H.264 via browser, it takes up to 2 connections. When the user operates the Camera/Audio Control on Center V2, it takes 1 connection.
- The codec and resolution of digital videos are set up on the GV-IPCAM H.264 instead of on the GV-System.
- The hardware compression and the “Pre-Recording Using RAM” feature cannot work on the videos from GV-IPCAM H.264.

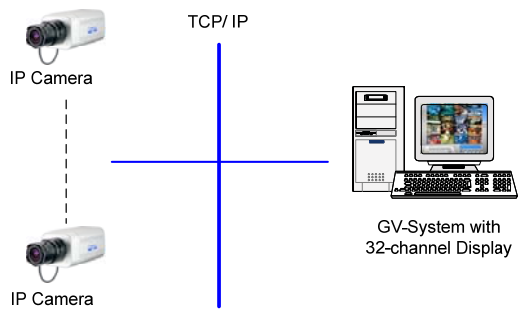


Figure 7-1

7.1 Setting up an IP Camera

To set up the GV-IPCAM H.264 on the GV-System, follow these steps:

1. On the main screen, click the **Configure** button, select **General Setting**, select **Camera / Audio Install** and click **IP Camera Install**. This dialog box appears.

Figure 7-2

2. Select **Install IP Camera**, select the number of the IP cameras you want to link to, and click **Configure**. This dialog box appears.

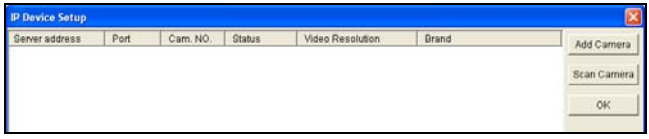


Figure 7-3

- To automatically set up the IP camera, click **Scan Camera** to detect any GV IP devices on the LAN.
- To manually set up the IP camera, click **Add Camera**.

The following steps are the example of manual setup.

3. Click **Add Camera**. This dialog box appears.

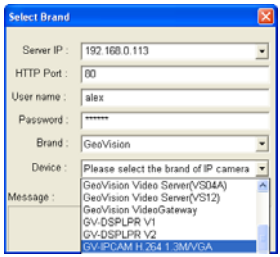


Figure 7-4

4. Type the IP address, username and password of the IP camera. Modify the default HTTP port if necessary. Select **GeoVision** from the Brand drop-down list and select **GV-IPCAM H.264 1.3M/VGA** from the Device drop-down list. This dialog box appears.

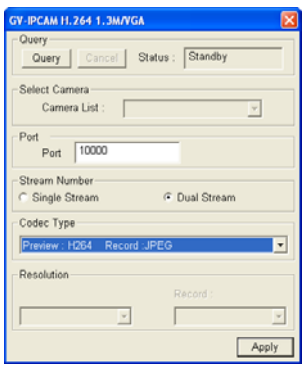


Figure 7-5

5. Click **Query** to acquire the information from the IP camera, and have these settings available:
   - **Port:** Video streaming port number.
   - **Stream number:** You have the option of single or dual streaming.
   - **Codec Type:** If you select **Dual Stream**, the preview codec and recording codec can be set differently.
6. Click **Apply**. The IP camera is added to the connection list.
7. Click the listed camera and select **Display position** to map the IP camera to a channel on the GV-System.

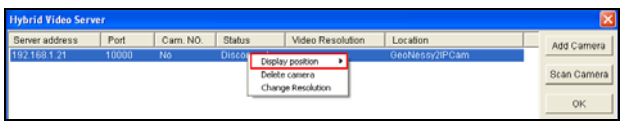


Figure 7-6

8. The Status column now should display “Connected”. Click **OK**.

7.1.1 Previewing Video and Setting Audio

To preview video and activate audio, click the desired IP camera (see Figure 7-6) on the connection list and select **Preview & Audio Setting**. This dialog box appears.

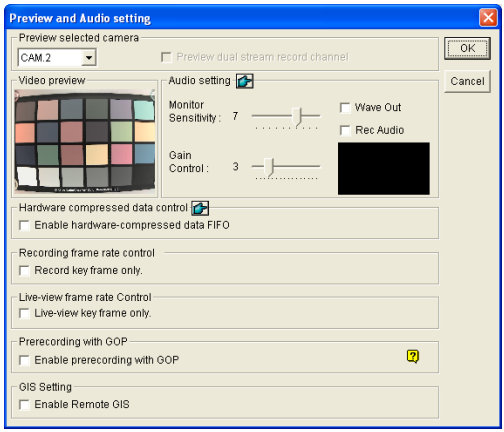


Figure 7-7

[Preview selected camera]

- **Drop-down List:** Select the desired camera for live preview.
- **Preview dual stream record channel:** The option is only available when the dual stream is selected, i.e. the cameras for live view and recording are configured differently (see Figure 7-5). Select this option for recording preview.

[Audio Setting]

- **Monitor Sensitivity:** Adjust the sensitivity of the audio that will be detected. The higher the value, the more sensitive the system is to the surrounding sound.
- **Gain Control:** Increase or decrease the gain of the microphone.

- **Wave Out:** Select this option to listen to live audio from the IP camera.
- **Rec Audio:** Select this option to activate the audio recording.

[Hardware compressed data control]

Hardware-compressed data from the video IP device, such as IP Camera, Video Server and Compact DVR, can be transmitted directly to remote servers instead of being compressed again on GV-System. The remote servers include Center V2, Control Center and WebCam. This function is useful when many remote servers access GV-System at one time. It can reduce the system load on GV-System, and provide more frame rates and better image quality for each remote server.

Note: It is highly recommended to enable this function on a LAN environment because it requires a lot of bandwidth.

[Record frame rate control] Set the recording frame rate to meet your storage requirements.

- **Maximum recording frame rate:** This option is available when the recording codec of the IP camera is set to **JEPG**. Select the frame rate from 1 to 30 fps.
- **Record key frame only:** This option is available when the recording codec of the IP camera is set to **MPEG4** or **H.264.** You can choose to record key frames instead of all frames. This option is related to the GOP setting of the IP camera. For example, if the GOP value is set to 30, there is only one key frame among 30 frames. For the GOP setting, see *4.1.1 Video Settings*.

[Live-view frame rate control] Set the frame rate of live view which can reduce the CPU usage.

- **Maximum live-view frame rate:** This option is available when the video codec of the IP camera is set to **JEPG**. Select the frame rate of live view from 1 to 30 fps.

- **Live-view key frame only:** This option is available when the video codec of the IP camera is set to **MPEG4** or **H.264**. You can choose to view the video of key frames instead of all frames on the live view. This option is related to the GOP setting of the IP camera. For example, if the GOP value is set to 30, there is only one key frame among 30 frames. For the GOP setting, see *4.1.1 Video Settings*.

[Prerecording with GOP] Enable video recording before an event occurs. The GV-System can prerecord video for up to 120 frames which is totally as much as 4 MB in buffer size. To enable this function, the three requirements must be met: D1 or CIF resolution, the number of frames in GOP set to 60 or less than 60 frames, MPEG4 or H.264 codec.

[GV-GIS Setting] Receive the GPS data from the IP device. To receive the GPS data, remember to also enable the GIS function of the GV-System (Configure button < Accessories < Enable Local GIS).

7.2 Remote Monitoring with Multi View

You can use the Multi View to monitor and manage the GV-IPCAM H.264.

7.2.1 Connecting to the IP Camera

1. On the Multi View window, click the **Edit Host** button. The Edit Host window appears.
2. To create a host, click the **New** button. You need to create a group before creating a host.
3. Select **GV-IP Camera, GV-IP Speed Dome** from the Device drop-down list. Type the host name, IP address, user name and password of the camera. Modify the default VSS port **10000** if necessary.

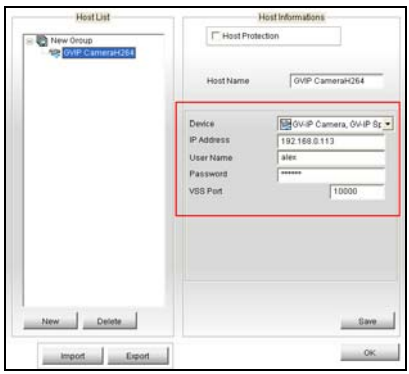


Figure 7-8

4. Click **Save** to establish connection.

For details on the Multi View functions, see “Multi View MPEG 4 Encoder Viewer”, *Viewing Live Video Using WebCam*, *User’s Manual* on the Surveillance System Software CD.

7.3 Remote Monitoring with E-Map

You can use the Remote E-Map to monitor and manage the GV-IPCAM H.264.

7.3.1 Creating an E-Map for the IP Camera

With the E-Map Editor, you can create an E-Map for the GV-IPCAM H.264. The E-Map Editor is available in the two applications: Main System and E-Map Server. The following is an example of running the E-Map Editor included in the Main System.

1. Go to Windows **Start** menu, point to **Programs**, select **GV folder** and click **E-Map Editor**.
2. To create an E-Map, click the **Add Map** button on the toolbar. A New Map file appears.
3. Double-click the New Map file, and click the **Load Map** button on the toolbar to import a graphic file
4. To create a host, click the **Add Host** button on the toolbar and select **Add IPCam.**
5. Right-click the created New Host in the Host View, and select **Host Settings**. This dialog box appears.

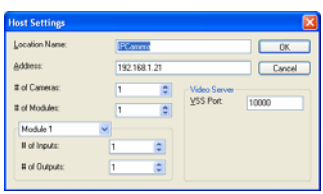


Figure 7-9

6. Give the camera a location name, and type its IP address (or domain name). Modify the default VSS port **10000** if necessary.

7. Click **OK** to save the settings.
8. Expand the created host folder. Drag and drop the icons of camera and I/O devices onto the imported E-Map.
9. Close the E-Map Editor. Click **Yes** when you are promoted to save the file.

For details on creating an E-Map file on the E-Map Server, see “E-Map Server”, *E-Map Application*, *User’s Manual* on the Surveillance System Software CD.

7.3.2 Connecting to the IP Camera

Depending on where you save the created E-Map file (DVR, E-Map Server or Control Center), the steps to open the Remote E-Map window for monitoring may vary slightly. The following is the connection example when you store the E-Map file on the DVR.

1. To enable the remote access to the DVR, click the **Network** button, select **WebCam Server** to display the Server Setup dialog box, and click **OK** to start the WebCam server.
2. At the local computer, open the web browser and type the address of the DVR. The Single View page appears.
3. Select **Emap**. A valid user name and password are required for login. For the first-time user, you will be directed to the Download page. Install the E-Map program before you can run it.
4. On the Remote E-Map window, click the **Login** button and select the camera host to access its videos and I/O devices. A valid user name and password are required to log in the camera.

For details on the Remote E-Map functions, see “The Remote E-Map Window”, *E-Map Application*, *User’s Manual* on the Surveillance System Software CD.

Chapter 8 CMS Configurations

This section introduces the related settings to enable connecting to the GV-IPCAM H.264 in the central monitoring stations Center V2, VSM and Dispatch Server.

8.1 Center V2

The Center V2 can monitor and manage the camera and I/O devices connected to the GV-IPCAM H.264.

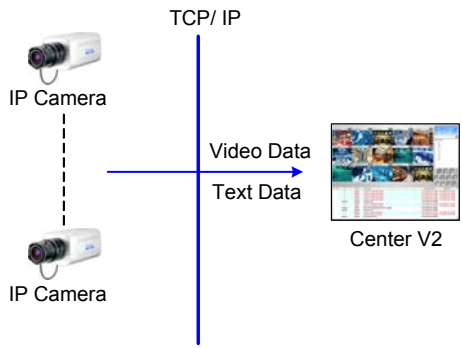


Figure 8-1

- To set the appropriate port connecting to the IP camera, click the **Preference Settings** button, point to **System Configure**, click the **Network** tab, and select **Accept connection from GV-Compact DVR, Video Server & IP Cam**. Keep default port **5551**, or modify it to match the Center V2 port on the IP camera.

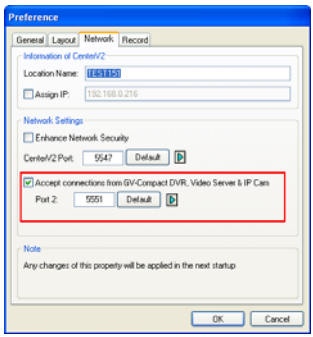


Figure 8-2

- To define how to display the received video on motion detection and input trigger from the IP camera, click the **Preference Setting** button and select **System Configure**. This dialog box appears.

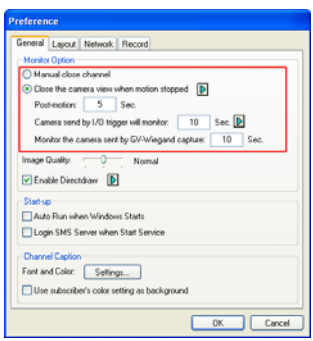


Figure 8-3

- **Manual close channel:** Closes the triggered camera view manually.
- **Close the camera view when motion stopped:** Closes the triggered camera view automatically when motion stops.
- **Post Motion:** Specify the duration of the camera view remaining on the monitoring window after motion stops.
- **Camera send by I/O trigger will monitor:** Specify the duration of the camera view remaining on the monitoring window when an I/O device is triggered.

  To keep the camera view remaining on the monitoring window even after the alarm is finished, click the right-arrow button, and uncheck **Latch Trigger**. Then the camera view will keep remaining on the monitoring window for the specified time. For example, the alarm is triggered for 5 minutes and you set 10 minutes, which means the total display time will be 15 minutes.

For further information on how to mange the received video from the IP camera, see *GV-CMS Series User's manual.*

8.2 VSM

The VSM can monitor and manage the camera and I/O devices connected to the GV-IPCAM H.264.

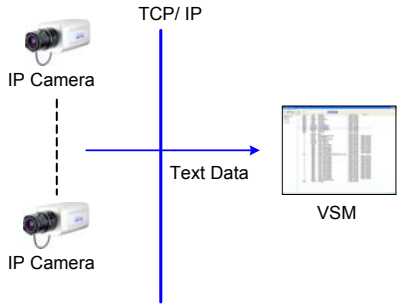


Figure 8-4

- To set the appropriate port connecting to the IP camera, click **Configure** on the window menu, and select **System Configure** to display this dialog box. In the Connective Port field, keep the default port **5609**, or modify it to match the VSM port on the IP camera.

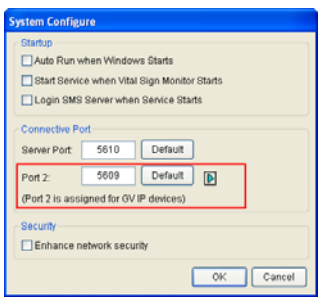


Figure 8-5

For further information on how to mange the received video from the IP camera, see *GV-CMS Series User's manual.*

8.3 Dispatch Server

The Dispatch Server can manage the camera and I/O devices connected to the GV-IPCAM H.264, and distribute them to the Center V2.

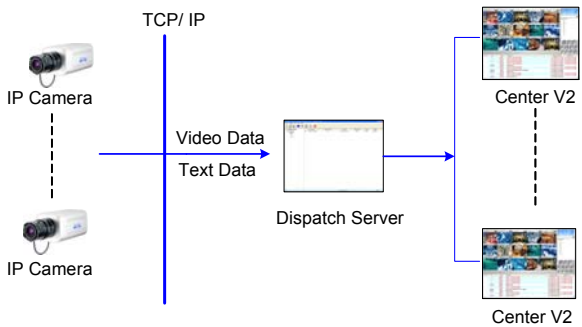


Figure 8-6

- To set the appropriate port connecting to the IP camera, click the **Server Setting** button on the toolbar, and select **Allow GV IP devices to login as subscriber from port**. Keep the default port as **5551,** or modify it to match the Center V2 port on the IP camera.

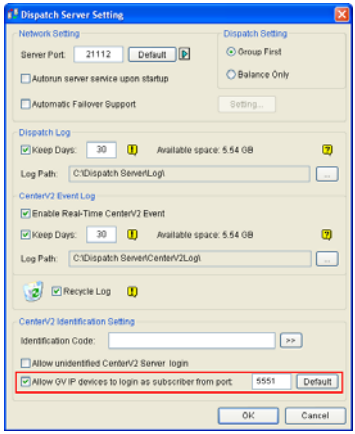


Figure 8-7

For further information on how to mange the received video from the IP camera, see *GV-CMS Series User's manual.*

Chapter 9 The I/O Terminal Block

Note this chapter and the function is only available for **Box Camera**.

The 5-pin terminal block, located on the back panel, provides the interface to one digital input and one relay output. The I/O terminal block can be used to develop applications for motion detection, event alerts via E-Mail and FTP, and center monitoring by Center V2 and VSM.

9.1 Pin Assignment

The pin assignment for the terminal block:

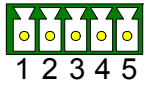


Figure 9-1

Pin	Function
1	Input +
2	Input -
3	Output Common
4	Output N/C
5	Output N/O

The GV-IPCAM H.264 only supports the input device of Wet Contact, 7V ~ 30V.

For the output point, please check if your output device meets the following **Absolute Maximum Ratings** before connecting it to the output point.

Breakdown Voltage	277V AC, 30V DC
Continuous Load Current	5A (NO), 3A (NC)
Note: Absolute Maximum Ratings are those values beyond which damage to the camera may occur. Continuous operation of the camera at the absolute rating level may affect the camera reliability.	

Chapter 10 Mobile Phone Connection

Using a PDA, Smartphone or 3G-enabled mobile phone, you can receive live video streaming from the GV-IPCAM H.264. The chart below lists the GV mobile applications supporting the GV-IPCAM H.264.

Handheld Device View	OS Supported	Default Port	Settings on GV-IPCAM H.264
GView V2	Windows Mobile 5.0 and 2003 for Pocket PC; Windows Mobile 6.0 / 6.1 Classic and Professional	TCP/IP Port: 10000 RPB Port: 5552 (ViewLog Server)	Video Settings / GViewV2 Supported
MSView V2	Windows Mobile 5.0 and 2003 for Smartphone	TCP/IP Port: 10000 RPB Port: 5552 (ViewLog Server)	Video Settings / 3GPP, MSViewV2, SSViewV3 Supported
MSView V3	Windows Mobile 6.0 / 6.1 Standard and Professional	TCP/IP Port: 10000 RPB Port: 5552 (ViewLog Server)	Video Settings / 3GPP, MSViewV2, SSViewV3 Supported
SSView V3	Nokia S60 2nd Edition and 3rd Edition for Smartphone	TCP/IP Port: 10000 RPB Port: 5552 (ViewLog Server)	Video Settings / 3GPP, MSViewV2, SSViewV3 Supported
3GPP	Mobile phones with players supporting RTSP	TCP/IP Port: 8554 UDP Port: 17300-17319	Video Settings / 3GPP, MSViewV2, SSViewV3 Supported

Chart 1

Note:

1. For the 3G-enabled mobile phone, you can receive live video from the camera without installing any GV mobile applications.
2. To receive the live video from the camera, enter the TCP/IP port on your mobile phone. To play video back, enable **ViewLog Server** on the camera and enter the RPB Port on your mobile phone.

10.1 PDA

GView V2 is a remote view application for Pocket PC device. It can run on the PDA with Windows Mobile operating system. For the supported operating system version, see *Chart 1*.

When GView V2 detects the big screen panel of the mobile phone, images from the GV-IPCAM H.264 will be horizontally rotated for a better view. Resolution is set to be CIF by default.

10.1.1 Installing GView V2

GView V2 should be installed on a PDA device with Microsoft Windows Mobile operating system.

1. Download and install **Microsoft PDA Viewer V2** from http://www.geovision.com.tw/english/5_3.asp to the computer.
2. Follow the on-screen instructions to complete the installation. The default installation directory is C:\Microsoft PDA Viewer V2.
3. Through the synchronization program such as ActiveSync, install **GViewV2.exe** from the installation directory to your PDA. Consult your PDA user's manual for how to install a program to the PDA.

10.1.2 Activating the GView Function

To allow remote access to the GV-IPCAM H.264, you must select **3GPP, Msview V2, Msview V3, Ssview V3 and GView V2 Supported** to be the connection type in the Connection Template field on the Video Settings page. See “Connection Template” in *4.1.1 Video Settings* for details.

10.1.3 Connecting to the IP Camera

Once GView V2 is installed on your PDA, you can use it to monitor your GV-IPCAM H.264. Make sure your PDA has wireless LAN adapter properly in place with access to the Internet.

1. Execute **GView V2** on your PDA.

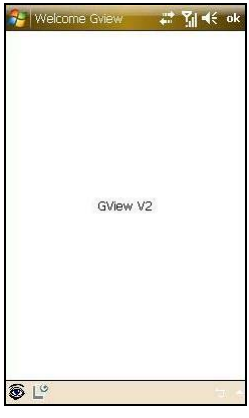


Figure 10-1

2. Click the button located at the lower left corner. The login screen appears.

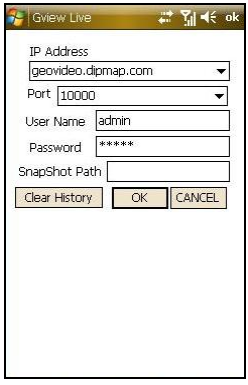


Figure 10-2

3. Enter the IP address of your camera, port value (default value is 10000), a username and a password. Then click **OK**.
4. Once the connection is established, the live image will appear.

10.1.4 Playing Back the Recordings from the IP Camera

To play back the recordings from the GV-IPCAM H.264, follow these steps:

1. Enable the **ViewLog Server** on the camera. Keep the connection port to be 5552 or modify it if necessary. See *3.3.5 ViewLog Server* for details.
2. Execute **GView V2** in your PDA.

3. Click the button located at the lower left corner (Figure 10-1). The login screen appears.

Figure 10-3

4. Enter the IP address of your GV-IP Camra, port value (default value is 5552), a username and a password. Then click **OK** to connect.
5. Select the desired video recording from the event list for playback.

10.1.5 Other Functions

In addition to live view and playback, GView V2 offers these functions: viewing / controlling I/O devices, PTZ control, adjusting image quality, and starting / stopping recording.

On the live view screen, click the buttons on the toolbar to have the desired functions.

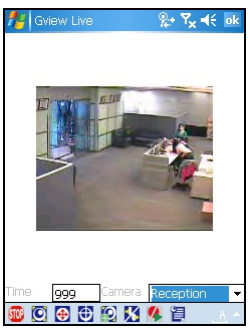
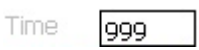


Figure 10-4

Button	Description
	Click it to stop the connection.
	Click it for Focus-in / Focus-out and Zoom-in / Zoom-out control. This is only available when the camera supports PTZ functions.
	Click it to move the camera to different directions. This is only available when the camera supports PTZ functions.
	Click it to move the camera to the preset positions. This is only available when the camera supports PTZ functions.
	Click it to adjust the image quality.
	Click it to access the connected I/O devices.
	Click it to start or stop recording.
	Click it to display the camera status.
	The supervisor is given the highest priority to control the PTZ camera and won't be restrained by 60-second time limit. When the supervisor logs in, the Timer shows 999.
	Use this drop-down list to switch cameras.

Accessing I/O Devices

To access the connected I/O devices, use the drop-down list to select the desired camera and click the button. The I/O module button appears on the toolbar.

Figure 10-5

The numbers on the toolbar indicate the connected module. Click the desired number to access its I/O devices. The I/O control buttons appear on the toolbar.

Figure 10-6

Button	Description
I	Click it to view the log of input triggers.
O	Click it to display and force the connected output devices.

Viewing Input-Triggered Events

All input triggers are logged on the Alarm list. Click the "**I**" button to view the list of trigger events.

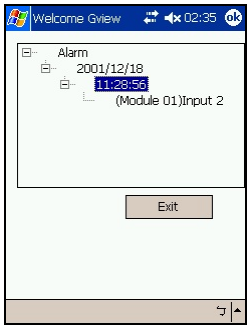


Figure 10-7

Forcing Outputs

To force any connected output devices, click the "**O**" button to, and click the desired number. The numbers on the toolbar indicate the connected output devices.

Figure 10-8

Controlling PTZ Cameras

To control the PTZ camera, use the drop-down list to select the desired camera, and click the button on the live view screen (Figure 10-4).

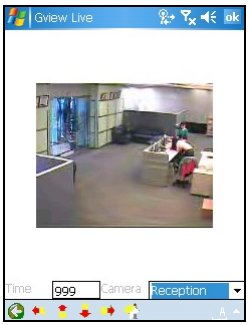


Figure 10-9

Button	Description
	Click it to return to the previous page.
	Use these buttons to move the PTZ camera to the left, up, down and right
	Click it to return to home.

Viewing Camera Status

To view the camera status, click the button on the live view screen (Figure 10-4).

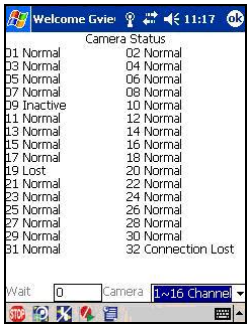


Figure 10-10

This screen displays the status of camera activity. Three messages indicate the current camera status.

Message	Description
Normal	The camera is turned on and not recording.
Inactive	The camera is turned off.
Recording	The camera is recording.

10.2 Windows Smartphone

With the MSView application, you can monitor your GV-IPCAM H.264 remotely through a Windows-based smartphone. For the supported operating system version, see *Chart 1*.

10.2.1 Installing MSView V2 / V3

1. Download and install **Microsoft Smaprtphone Viewer V2** or **Microsoft Smarphone Viewer V3** from http://www.geovision.com.tw/english/5_3.asp to the computer.
2. Follow the on-screen instructions to complete the installation. The default installation directory is **C:\SmartPhone Viewer V2** or **C:\SmartPhone Viewer V3**.
3. Through the synchronization program such as **ActiveSync**, install **MsviewV2.exe** or **MsviewV3.exe** from the installation directory to your smartphone. Consult your smartphone user's manual for how to install a program to the smartphone.

10.2.2 Activating the MSView V2 / V3 Function

To allow remote access to the GV-IPCAM H.264, you must select **3GPP, MSViewV2, SSViewV3 Supported** to be the connection type in the Connection Template field on the Video Settings page. See "Connection Template" in *4.1.1 Video Settings* for details.

10.2.3 Connecting to the IP Camera

The following operations may vary slightly for different modules.

1. Execute **MSViewV2.exe** or **MSViewV3.exe** on your smartphone.

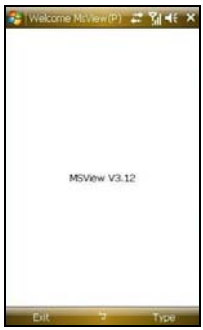


Figure 10-11

2. Click **Type** and then **Live**.

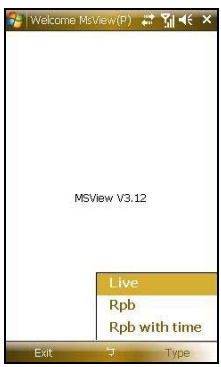


Figure 10-12

3. On the login screen, enter the IP address of your camera, port value (default value is 10000), a username and a password. Then click **Control** and select **Connect**.

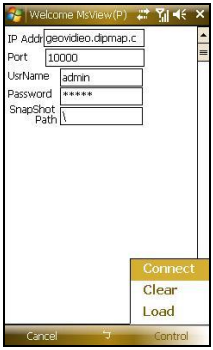


Figure 10-13

4. Once the connection is established, the live image will appear. You can use the scroll key on your smartphone to navigate camera channels.

Figure 10-14

10.2.4 Playing Back the Recordings from the IP Camera

To play back the recordings from the GV-IPCAM H.264, follow these steps:

1. Enable **ViewLog Server** on the camera. Keep the connection port to be 5552 or modify it if necessary. See *4.3.6 ViewLog Server* for details.
2. Execute **MSView V2** or **MSView V3** in your smartphone.
3. Select **Type** and then **Rpb** (Figure 10-12). The login screen appears. If you want to search the recordings within a specific period of time for playback, select **Rpb with time**.

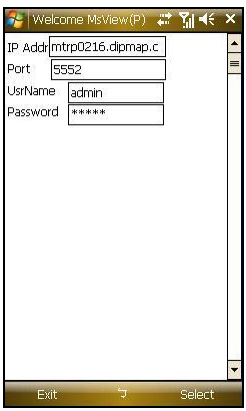


Figure 10-15

4. Enter the IP address of your camera, port value (default value is 5552), a username and a password. Then click **Select** and click **GV Video Server** to start the connection.
5. Select the desired video recording from the event list for playback.

10.2.5 Other Functions

In addition to live view, MSView V2 or MSView V3 offers these functions: zooming in/out a camera view, rotating images and controlling outputs. Select the **Control** option to have these features.

10.3 Symbian Smartphone

With the SSView V3 application, it's also possible to monitor your GV-IPCAM H.264 remotely through a Symbian-based smartphone. For the supported operating system version, see *Chart 1*.

10.3.1 Installing SSView V3

To install SSView Version 3 for Nokia S60 2nd and 3rd Edition:

1. Download and install **Symbian Smartphone Viewer V3** from http://www.geovision.com.tw/english/5_3.asp to the computer.
2. Follow the on-screen instructions to complete the installation. The default installation directory is **C:\Symbain SmartPhone Viewer V3**.
3. Make a note of the modification date of SsviewV3_2nd.sis or SsviewV3_3rd.sis. Right-click the file, select **Properties** and find the date listed in the Modified field.
4. Change the date settings on the smartphone first. Here we use Nokia E61 as the example to illustrate the steps.
   A. On the main menu of the smartphone, select **Tools Option** ▸ **App.manager** ▸ **Options** ▸ **Open** ▸ **App.downloads** ▸ **Options** ▸ **Settings** ▸ **Online certif..check**, and then set **Online certif..check** to be **Off**.
   B. Return to the main menu, select **Tools** ▸ **Options** ▸ **Open** ▸ **Settings** ▸ **Options** ▸ **Open** ▸ **Date and time** ▸ **Options** ▸ **Open**, and then reset the date to be any within a year from the modification date of the application in the Date field. For example, if the modification date of SsviewV3_3rd.sis is January 30, 2007, you can reset the date in the Date field to be any between January 30, 2007 and January 29, 2008.

5. Begin the installation of SSView V3 on your smartphone. If your smartphone is of S60 2nd Edition, install **SsviewV3_2nd.sis** from the installation directory to the smartphone. If your smartphone is of S60 3rd Edition, install **SsviewV3_3rd.sis**. Consult your smartphone user's manual for how to install a program to the smartphone.
6. Follow Step 5 to change the date back to today's date.

10.3.2 Activating the SSView V3 Function

To allow remote access to the GV-IPCAM H.264, you must select **3GPP, MSViewV2, SSViewV3 Supported** to be the connection type in the Connection Template field on the Video Settings page. For details, see "Connection Template" in *4.1.1 Video Settings*.

10.3.3 Connecting to the IP Camera

The following operations may vary slightly for different modules.

1. Execute **SSView** on your smartphone.
2. When the message *SSView V3* appears, select **Options**, and select **Live Connect**. The login screen appears.

Figure 10-16

3. Enter the IP address of your camera, port value (default value is 10000), a username and a password. Then click **Options** and select **Connect.**
4. Once the connection is established, the live image will appear.

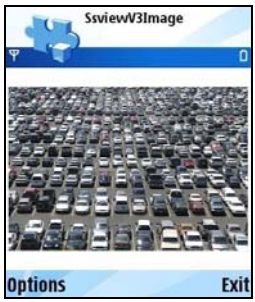


Figure 10-17

10.3.4 Quick Connection

The IP addresses of connected servers can be stored for quick connection in the future. Press the **[<]** and **[>]** buttons on the mobile device to select the desired camera for connection.

10.3.5 Playing Back the Recordings from the IP Camera

To play back the recordings from the GV-IPCAM H.264, follow these steps:

1. Enable **ViewLog Server** on the camera. Keep the connection port to be 5552 or modify it if necessary. See *4.3.6 ViewLog Server* for details.
2. Execute **SSView** on your smartphone.

3. When the message *SSView V3* appears, click **Options**, and then select **Rpb**. The login screen appears. If you want to search the recordings within a specific period of time for playback, select **Rpb With Time**.

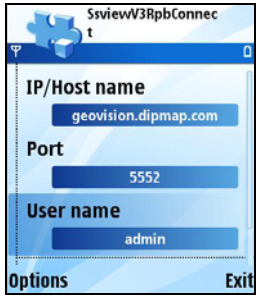


Figure 10-18

4. Enter the IP address of your camera, port value (default value is 5552), a username and a password. Then click **Options** and select **Video Server**.

5. Select the desired video recording from the event list for playback.

10.3.6 Other Functions

In addition to live view, SSView offers these functions: changing camera channels, zooming in a camera view, rotating images and controlling outputs. Select **Options** to have these features.

10.4 3G Mobile Phone

Without installing any GV applications, you can use a 3G mobile phone to access GV-IPCAM H.264 directly.

10.4.1 Activating the 3G Mobile Phone Function

To allow remote access to the GV-IPCAM H.264, first you must select **3GPP, MSViewV2, SSViewV3 Supported** to be the connection type in the Connection Template field on the Video Setting page, and then enable the **3GPP Server** on the camera. See *4.1.1 Video Settings* and *4.3.7 3GPP* for details.

10.4.2 Connecting to the IP Camera

1. Open the Internet browser in the mobile phone, and enter the IP address of your camera, a user name and a password. Then click **Apply** to connect.

Figure 10-19

2. After the connection is established, an image similar to this example appears.

Figure 10-20

3. Select the desired channel. Its live image will appear.

Figure 10-21

Note: Currently the 3GPP application does not support remote playback and I/O control.

Specifications

GV-IPCAM H.264

A. Box Camera

Camera

Image Sensor		1/3" progressive scan CMOS
Picture Elements	**GV-BX110D**	1280 (H) x 1024 (V)
	GV-BX010D	640 (H) x 480 (V)
Minimum Illumination	**GV-BX110D**	0.5 lux at F1.0
	GV-BX010D	0.1 lux at F1.6
Shutter Speed	**GV-BX110D**	1/5 ~ 1/4000 sec, Balanced, Speed Priority, Quality Priority
	GV-BX010D	1/120 ~ 1/8000 sec, Auto
White Balance		Automatic, Manual (2800K ~ 8500K)

Operation

Video Codec		H.264, MPEG4, MJPEG	
Video Streaming		Dual Streams from two of H.264, MPEG4 and MJPEG	
Video Resolution	**Main Streaming**	**GV-BX110D**	1280 x 1024 (SXGA), 640 x 480 (VGA), 320 x 240 (CIF), 176 x 144
		GV-BX010D	640 x 480 (VGA), 320 x 240 (CIF), 176 x 144
	Sub Streaming	640 x 480 (VGA), 320 x 240 (CIF), 176 x 144	
Frame Rate		**GV-BX110D**	15 fps at 1280 x 1024 (SXGA), 30 fps at 640 x 480 (VGA)
		GV-BX010D	30 fps at 640 x 480 (VGA)

Image Setting	Brightness, Contrast, Sharpness, Gamma, White Balance, Flicker-less, Image Orientation
Audio Codec	G.711
Digital Input	Wet Contact , 7V ~ 30V
Relay Output	277V AC 5A (NO), 3A (NC) 30V DC 5A (NO), 3A (NC)

Network

Interface	10/100 Ethernet
Protocol	HTTP, TCP, UDP, SMTP, FTP, DHCP, NTP, UPnP, DynDNS, 3GPP/ISMA RTSP

Mechanical

Lens Mounting		C / CS-Mount
Connectors	**Power**	DC Jack
	Ethernet	RJ-45
	Audio	1 In (Using the built-in microphone or externally connecting a microphone) 1 Out (Stereo phone jack, 3.5mm / 0.14 in)
	Digital I/O	5-pin terminal block, pitch 3.5 mm / 0.14 in
	Auto Iris	DC drive
	Local Storage	Mini or micro SD/SDHC memory card slot
	TV-Out	BNC connector
LED Indicator		1 LED with two colors

General

Operating Temperature	0°C ~ 50°C / 32 °F ~ 122 °F
Humidity	10% to 90% (no condensation)
Power Source	12V DC / PoE
Power Consumption	7.2 W (max. 600mA at 12V DC)
Regulatory	CE, FCC, C-Tick, RoHS compliant
Dimension (L X W X H)	115 x 65 x 60 (mm) / 4.52 x 2.55 x 2.36 (in)
Weight	450 ± 50 (g) / 0.99 ± 0.11 (lb)

Power over Ethernet

PoE Standard	IEEE 802.3af Power over Ethernet / PSE
PoE Power Supply Type	End-Span
PoE Power Output	Per Port 48V DC, 350mA. Max. 15.4 watts

Web Interface

Installation Management	Web-based configuration
Maintenance	Firmware upgrade through Web Browser or Utility
Access from Web Browser	Camera live view, video recording, change video quality, bandwidth control, image snapshot, digital I/O control, audio, Picture in Picture, Picture and Picture, Privacy Mask, Visual Automation, Tampering Alarm

Application

Network Storage	GV-NVR, GV-System
3G Mobile Phone	Built-in player for 3GPP / ISMA
Live Viewing	IE , Mobile Phone
CMS Server support	GV-Control Center, GV-Center V2, GV-VSM

B. Mini Fixed Dome

Camera

Image Sensor	1/3" progressive scan CMOS
Picture Elements	1280 (H) x 1024 (V), 1.3 M CMOS
Minimum Illumination	0.5 Lux at F1.0

Lens

Aperture	F = 1.8
Lens Focal	f = 3.6 mm
Angle of View	100° (D), 77° (H), 54°(V)

Operation

Video Codec		H.264, MJPEG, MPEG4
Video Streaming		Dual Streams from two of H.264, MPEG4 and MJPEG
Video Resolution	**Main Streaming**	1280 x 1024 (SXGA), 640 x 480 (VGA), 320 x 240 (CIF), 176 x 144
	Sub Streaming	640 x 480 (VGA), 320 x 240 (CIF), 176 x 144
Frame Rate		30 fps at 640 x 480 (VGA) 15 fps at 1280 x 1024 (SXGA)
Image Setting		Auto Exposure, Auto White Balance, Brightness, Contrast, Sharpness, Gamma, Monochrome, Reverse, Rotate 180°, Flicker-less 50/60 Hz
Audio Codec		G.711

Network

Interface	10/100 Ethernet
Protocol	HTTP, TCP, UDP, SMTP, FTP, DHCP, NTP, UPnP, DynDNS, 3GPP/ISMA, RTSP

Power over Ethernet

PoE Standard	IEEE 802.3af Power over Ethernet
PoE Power Supply Type	End-Span and Mid-Span
PoE Power Output	Per Port 48V DC, 350 mA. Max. 15.4 watts

Mechanical

Camera Angle Adjustment	Tilt 0 ~ 90° ; Pan -45° ~ +45°
Ethernet	RJ-45 Connector
Microphone	Built in

General

Operating Temperature	0°C ~ 50°C / 32°F ~ 122°F
Humidity	10% - 90%, no condensation
Power Source	PoE
Power Consumption	5.8 W
Certificate	CE, FCC, RoHS compliant
Dimensions	ø 106 x 54.4 mm / 4.2 x 2.1 in
Weight	212 (g)

Web Interface

Installation Management	Web-based configuration
Maintenance	Firmware upgrade through Web Browser or Utility
Access from Web Browser	Camera live view, video recording, change video quality, zoom in/out, bandwidth control, image snapshot, audio, Picture in Picture, Picture and Picture, Privacy Mask, Visual Automation

Applications

Network Storage	GV-NVR, GV-System
3G Mobile Phone	Built-in player for 3GPP / ISMA
Live Viewing	IE , Mobile Phone
CMS Server support	GV-Control Center, GV-Center V2, GV-VSM

C. Supplied Fixed Focal Lens

Megapixel		Yes
IR Support		Yes
Iris		Fixed Iris
Focal Length		4.0 mm ± 5%
Aperture		F/1.5 ± 5%
Mount		CS
Image Format		1/3”
Total Length		23.65 mm
Field of View	**Depth**	80.4°± 5°
	Height	65.4°± 5°
	Vertical	49.9°± 5°

D. Optional DC Iris Lens

Megapixel		Yes
IR Support		Yes
Iris		DC Drive
Focal Length		4 ~ 9 mm
Aperture		F/1.4
Mount		CS
Image Format		1/3”
Field of View (Horizontal)		60° ~ 30°
Dimensions		28 x 41.5 x 43.5 (mm) / 1.10 x 1.63 x 1.71 (in)
Operation	**Focus**	(w/lock)
	Zoom	(w/lock)
	Iris	DC

Product specifications are subject to change without notice.

Appendix

Supported Lenses

Provider	Model No.
Fujian Forecam Optics	RV0409D.IR
	RV0515D.IR
	RV0820D.IR
EVETAR	EVD03618F-IR
	EVD04218F-IR
	EVD06018F-IR
	EVD08018F-IR
	EVD12018F-IR
	EVD16018F-IR
Pentax	TS3VP213ED-M